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ABSTRACT

There are 15 papers in this collection from the Division of Management and Technology: (1) "Les Activites de formation dans les centres regionaux du Programme PAC" (Training Activities in the Regional Centers of the Preservation and Conservation Program) (Jean-Marie Arnoult); (2) "Professional Education for Preservation: An Overview" (John Feather); (3) "Needs for Standards in Office Automation" (Axel Wiesner); (4) "Message Handling Systems Electronic Data Interchange: An Introduction to Converging for Electronic Messaging" (Leigh Swain); (4) "The Future Capital Funding of Library Buildings" (David C. Weber); (5) "A Flexible Learning Environment: Library Resource Centres for the Twenty-First Century" (Lois Woods); (6) "Statistics and Evaluation in French University Libraries" (French and English versions; Pierre Carbone); (7) "Library Statistics--For What Purpose?" (Morten Laursen Vig); (8) "Update on Videotechnology in Libraries" (French and English versions; Isabelle Giannattasio); (9) "Management and Organisation of Video in Libraries" (Patsy Cullen); (10) "Copyright in Audiovisual Materials" (P. T. McNally); (11) "The Status and Social Prestige of Library and Information Profession: An International Survey" (Ibolya Billedi); (12) "Image of the Librarian/Information Professional: A Special Libraries Association Presidential Task Force" (Frank Spaulding); (13) "Values, Priorities, and Research Allocations in Libraries and Information Centers" (M. E. L. Jacob); (14) "Statistics, Management, and Automation" (Barton M. Clark); and (15) "Librarianship in Support of Scholarship" (Raymond A. Palmer). (SD)

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PARIS, FRANCE
19-26 AOÛT 1989

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55th IFLA COUNCIL AND
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Brochure 60 / *Booklet 60*

DIVISION DE LA GESTION ET DE LA TECHNOLOGIE
DIVISION OF MANAGEMENT AND TECHNOLOGY

SECTION DE LA CONSERVATION
SECTION ON CONSERVATION

Session 105 — mardi 22 août / *Tuesday 22 August* — 08:00 - 10:30

Les Activités de formation dans les centres régionaux du Programme PAC *(110-CONS-2-F)*	Jean-Marie ARNOULT, Bibliothèque nationale, Paris, France
Professional Education for Preservation : an Overview *(88-CONS-1-E)*	John FEATHER, Professor of Library and Information Studies, Loughborough University of Technology, UK

SECTION DE LA TECHNOLOGIE DE L'INFORMATION
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Needs for Standards in Office Automation *(92-INF-2-E)*	Axel WIESNER, Responsible Manager for R & D, ARCOS Conseil, France
Message Handling Systems and Electronic Data Interchange : An Introduction to Converging for Electronic Messaging *(65-INF-1-E)*	Leigh SWAIN, National Library of Canada, Canada

SECTION DES CONSTRUCTIONS ET DE L'ÉQUIPEMENT DES BIBLIOTHÈQUES
SECTION ON LIBRARY BUILDINGS AND EQUIPMENT

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The Future Capital Funding of Library Buildings *(17-BUILD-1-E)*	David C. WEBER, Director of University Libraries, Stanford University, Stanford, California, USA
A Flexible learning environment : library resource centres for the twenty-first century *(89-BUILD-2-E)*	Lois WOODS, Associate Librarian (Special Projects) for TAFE Library Services, New South Wales Department of Technical and Further Education, Sydney, Australia

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SECTION DES STATISTIQUES
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TABLE RONDE DES DOCUMENTS AUDIOVISUELS
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Management and Organisation of Video in Libraries *(33-AVM-2-E)*	Patsy CULLEN, Principal Lecturer, Department of Library and Information Studies, Leeds Polytechnic, Leeds, UK

Pour la réunion commune avec la Section des bibliothèques d'art. Voir Brochure 20
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Image of the Librarian/Information Professional, a Special Libraries Association Presidential Task Force *(62-RTMLA-2-E)*	Frank H. SPAULDING, Library/Information Consultant, Special Libraries Association Delegate to IFLA, Washington D.C., USA

110-CONS-2-F

Les Activités de formation dans les centres régionaux du Programme PAC

Jean-Marie ARNOULT, *Bibliothèque Nationale, Paris, France*

RESUME

Les centres régionaux du programme "Preservation and Conservation" (PAC) ont fait porter leurs efforts sur la formation des personnels. Par l'organisation de stages, individuels ou collectifs, ils ont mis au point des actions pédagogiques adaptées aux besoins exprimés par les responsables des bibliothèques. Ils jouent également le rôle d'experts ou de consultants auprès d'institutions soucieuses de développer une politique de préservation et de conservation. La difficulté du financement des stages, qui suppose des procédures parfois longues et complexes, ne doit pas néanmoins entraver la poursuite des programmes engagés.

L'élaboration progressive, depuis 1986, du réseau initié par le programme fondamental "Préservation and Conservation" mené à bien par l'IFLA en collaboration avec de nombreux organismes, constitue l'un des efforts les plus incisifs pour la préservation du patrimoine mondial conservé dans les bibliothèques. Répondant à un besoin souvent mal exprimé et relevant de constatations pragmatiques, cet effort a suscité d'autres besoins dont l'expression s'est vite précisée au fil des mois. Le programme PAC a dû s'organiser en conséquence et prévoir un cadre formel afin de tenir compte de la demande croissante en formation, et orienter ses propres activités en fonction de cette réalité.

I. LES BESOINS

En matière de restauration traditionnelle, la formulation des besoins est ancienne. Nombre de bibliothèques ont souhaité depuis longtemps organiser ou améliorer leur atelier de restauration intégré. La demande de formation a donc toujours été latente, et les réponses ont été apportées ponctuellement selon les possibilités offertes par l'établissement hôte. Pour la seule année 1988, près de 12 mois de stages ont été acceptés par la Bibliothèque Nationale dans le domaine de la restauration, et les sollicitations sont plus nombreuses que les capacités d'accueil. Les critères de choix des stagiaires sont limités à l'opportunité de la demande et du secteur de travail souhaité : entrent rarement en compte les aptitudes professionnelles qui ne sont pas vérifiables par correspondance, le niveau des diplômes n'étant pas identique — tant s'en faut — dans les pays demandeurs.

La création du Programme PAC, la publication des *Principes de préservation* en 1986, la diffusion rapide d'informations sur la nécessité de traitements préventifs, le Congrès de Vienne de la Conference of Directors of National Libraries (CDNL) en 1986, ont largement contribué à modifier l'attitude des bibliothécaires en peu de temps. Ce qui, il y a quelques années, était considéré comme une fatalité, se révéla pouvoir être maîtrisé sur les plans technique, bibliothéconomique, et économique enfin. La préservation se voyait promue au rang de fonction importante dans les bibliothèques qui se mirent en devoir de recenser leurs besoins matériels et humains, reportant leurs espoirs de formation sur le potentiel naissant de la structure PAC.

Etrangement absente d'un grand nombre d'écoles de bibliothéconomie, la préservation n'était en effet l'objet que de quelques cours, conséquence de la conception spécifique de ce domaine qu'on réservait à des spécialistes. Mais l'insistance et l'empressement des bibliothécaires, leur acuité à percevoir l'importance des problèmes qu'ils rencontraient, entraînèrent une disponibilité étonnante aux programmes de formation qui leur étaient proposés. Cette formation n'était pas destinée à des spécialistes ou à des techniciens, mais à des gestionnaires, à des responsables de services confrontés à la réalité quotidienne : ce glissement vers une perspective différente révèle une modification en profondeur des préoccupations ; une évolution historique se dessinait dans l'histoire des bibliothèques et des bibliothécaires.

C'est dans ce contexte que les centres régionaux du programme PAC organisèrent leurs structures de fonctionnement, dans un mouvement d'offres et de demandes qui trouvèrent rapidement leur synchronisation.

II. STRUCTURES ET PROGRAMME

(a) Si la publication du premier numéro d'*International Preservation News* (1987) a donné une large diffusion aux travaux préliminaires des centres régionaux, la publicité s'est trouvée faite naturellement à l'intérieur des cercles professionnels. La Bibliothèque Nationale avait déjà un certain nombre de programmes de stages élaborés pour elle-même ou en collaboration avec la Direction du livre et de la lecture, ou avec des associations régionales de coopération entre bibliothèques : les nouvelles dispositions vinrent en complément et prirent appui sur une structure existante et sur un acquis. Volontairement, les contacts qui s'établirent mirent l'accent davantage sur la préservation des collections que sur leur restauration. Les résultats de l'enquête UNESCO/IFLA/ICA de 1986 (parue en 1988) montraient bien que l'urgence était d'abord dans le domaine préventif. Les premiers stages PAC furent donc entièrement consacrés aux techniques de la préservation et n'imposèrent pas de niveau professionnel de formation initiale, seulement un niveau de fonction et d'activités au sein d'un établissement.

(b) Pour des raisons pratiques et financières, ces stages s'adressèrent à des groupes professionnels français qui permirent de tester à la fois les programmes pédagogiques et les matériels d'enseignement. Grâce à la réalisation de montages audiovisuels par le Focal Point de la Library of Congress de Washington, on a pu disposer d'un matériel souple et bien adapté à divers publics : conservateurs, personnels techniques, personnels de magasinage. La volonté était d'initier à la préservation tous les usagers des bibliothèques, professionnels et non-professionnels (étudiants, élèves lors de programmes d'action éducative).

Les stages collectifs présentent un intérêt indéniable. Outre qu'ils atteignent rapidement leur but d'information ciblée, ils suscitent un esprit d'émulation dont le résultat n'est pas négligeable. Leur durée est variable selon le programme retenu : ils n'excèdent pas une semaine (5 jours) avec un minimum de trois jours. Ces durées paraîtront courtes, mais l'expérience a montré qu'au-delà de quatre jours l'attention de non-techniciens se relâche face à des problèmes techniques. On a donc dosé avec soins les enseignements théoriques et les travaux pratiques pour ne pas dérouter les stagiaires et les mettre en situation de demi-échec.

(c) Ce qui est réalisable pratiquement pour des stages collectifs à l'échelon national, ne l'est que difficilement pour des stages de dimension internationale. La difficulté de trouver des sources de financement (pour les voyages et les hébergements) a singulièrement compliqué la mise sur pied de stages destinés aux professionnels des pays relevant des centres régionaux. A Sablé, un seul stage de ce type a pu être réalisé en 1988 grâce à un concours canadien (Agence canadienne de développement international) pour les pays africains de langue française. Ces opérations se révèlent lourdes et complexes mais elles offrent un intérêt majeur : réunir dans un même lieu des participants d'origines diverses ayant des préoccupations communes. La difficulté réside néanmoins dans la nécessité de présenter un message d'une manière concrète et réaliste sans le rendre inaccessible à des professionnels dont les moyens financiers sont limités. La préservation impose des investissements certains, mais elle impose aussi une compréhension des problèmes qui n'exige pas un support financier extravagant. Face aux possibilités restreintes de réunir de tels stages, on a accepté de proposer des stages individuels, tant pour des techniciens français qu'étrangers.

(d) Paradoxalement, les stages individuels se heurtent à des contraintes plus nombreuses et plus lourdes. Alors que les stages collectifs ont une limite de cinq jours, les stages individuels ont une durée de deux semaines au minimum, de trois mois au maximum. Ils nécessitent donc un encadrement plus constant et des évaluations régulières pour mesurer les progrès du stagiaire. Les domaines couverts sont généralement liés à la préservation : reliure et conditionnement des documents, micrographie, mais aussi restauration traditionnelle. Dans leur grande majorité, les stages individuels ont été organisés pour des techniciens étrangers pris en charge par l'UNESCO ou par le Ministère des relations extérieures dans le cadre d'accords de coopération culturelle, par l'intermédiaire du Centre international des étudiants stagiaires de Paris. On assiste à une demande croissante de ce type de stages, mais les procédures de financement sont longues, contraignantes et souvent mal connues des postulants qui ignorent que les centres régionaux ne sont pas en mesure de résoudre par eux-mêmes les formalités administratives et financières : les centres régionaux sont des centres d'accueil, sans pouvoirs de décision sur le plan du financement. La Bibliothèque Nationale se charge d'organiser le programme pédagogique et s'assure des bonnes conditions matérielles d'hébergement ; il n'est pas dans son pouvoir d'aller au-delà.

III. FORMATION A L'EXTERIEUR

De par leur vocation et leur potentiel technique, les centres régionaux sont appelés à jouer le rôle de consultants ou d'experts. Ce rôle prend des formes simples : visites de courte durée dans de petites bibliothèques, organisation de programmes de préservation, fournitures de renseignements techniques, réponses à des inquiétudes ; il peut prendre parfois des formes plus complexes telles que des expertises de longue durée auprès de grandes bibliothèques, ou l'organisation de cours pour des techniciens.

(a) Les missions d'expertise ou de consultation dans des bibliothèques du centre régional nécessitent une organisation précise et coûteuse. La plupart d'entre elles ont été demandées à l'UNESCO par des pays membres, ou au Ministère des relations extérieures, qui prend en charge les frais du missionnaire. Plus rarement, une bibliothèque décide d'assumer seule ces frais sur son propre budget. Le programme de ces missions consiste généralement en un bilan de la situation au regard de la préservation, une évaluation des besoins et des propositions d'élaboration d'un programme complet de préservation et de conservation. L'intérêt de ces missions est double : amener, par des discussions, les responsables de la bibliothèque à considérer la préservation comme une autre manière de concevoir la gestion quotidienne de leur établissement, sensibiliser les personnels à la nécessité d'un complément de formation par une autocritique. La difficulté pour le missionnaire étant de s'adapter au contexte local, de rassembler en peu de temps des informations en apparence hétérogènes, de caractère économique (industrie papetière, tanneries, ressources agricoles), culturel (fabrication et diffusion du livre), bibliothéconomique (efficacité du dépôt légal, réseaux informatisés, actions de coopération), scolaire et universitaire (formations initiale et continue), historique enfin, pour comprendre le rôle de la bibliothèque visitée et proposer des solutions respectant au mieux les données locales et susceptibles d'être appliquées avec le plus de chances possible. L'analyse du système adéquat de formation des personnels à la préservation est un des points importants de la mission, car c'est sur lui que repose l'avenir du programme de préservation des collections. Le rapport qui est rédigé à l'issue de chaque mission doit être la synthèse et l'instrument de travail permettant à la bibliothèque d'orienter ses actions ultérieures sans perte de temps et avec le maximum d'efficacité.

(b) L'organisation d'enseignements dans une bibliothèque étrangère offre un certain nombre d'avantages, et d'inconvénients qu'il n'est pas toujours aisé de surmonter. Le premier obstacle à franchir est la difficulté de réunir matériels pédagogiques, informations bibliographiques, matériaux et outils utiles à l'enseignement, d'où la nécessité parfois de les transporter avec soi malgré leur poids et leur encombrement. Le missionnaire devient alors une sorte de voyageur de commerce aux valises pleines d'échantillons. Le second obstacle est l'ignorance souvent totale du niveau professionnel de son public, qui l'oblige à une évaluation précise au cours des premiers jours pour adapter son enseignement en fonction des résultats obtenus. L'évaluation régulière est d'autant plus nécessaire que les langues de communication étant parfois différentes, il convient de s'assurer que les informations transmises ont été acquises ou, dans l'hypothèse inverse, qu'il ne faut pas répéter le cours sous une autre forme plus accessible à l'auditoire. Il faut aussi identifier les stagiaires dont le niveau est le plus élevé et à qui on pourra confier ultérieurement le rôle de formateurs ou de répétiteurs sans bouleverser les hiérarchies propres à un atelier. Il faut enfin, et malgré la prévoyance dont on a fait preuve, pallier l'absence de matériels, d'outils, de matériaux, improviser des démonstrations et des exercices pratiques adaptés aux besoins locaux.

Mais il est aussi des avantages certains. Le premier est d'évoluer dans un contexte particulier avec ses qualités et ses faiblesses, de mesurer ses capacités techniques et de proposer en conséquence une évolution qui doit être préfigurée à l'issue de la formation. Le second intérêt est d'avoir une idée précise du potentiel humain, de découvrir les qualités et les défauts de chacun qu'il faut conjuguer pour dessiner une équipe cohérente et efficace. Le troisième intérêt est la disponibilité forcée et consentante du missionnaire qui lui permet, en peu de temps, d'assurer un programme pédagogique sous tous ses aspects, techniques et humains.

IV. L'ORGANISATION

Qu'ils soient organisés au centre régional PAC ou dans une bibliothèque d'accueil, les stages exigent des collaborations administratives et financières. En premier lieu, l'IFLA et l'UNESCO dont le Programme général d'information (PGI) joue le rôle de focalisateur et qui finance une grande partie des actions en faveur de la sauvegarde du patrimoine des bibliothèques pour les pays membres. En second lieu, le Ministère des relations extérieures français : grâce à une action volontariste et efficace en faveur du livre et des bibliothèques, des crédits sont réservés pour des opérations de formation des personnels dans le cadre des accords culturels de coopération. En troisième lieu, des organismes dont les préoccupations sont culturellement ou professionnellement proches de celles des bibliothèques : tel est le cas de l'Agence canadienne de développement international déjà citée, et du Conseil international des archives dont les preuves de coopération sont nombreuses dans le domaine de l'investigation et de la formation. Des opérations conjointes avec l'ICCROM seront tentées au cours des prochaines années. Enfin, on n'aurait garde d'oublier la Bibliothèque Nationale qui assume une grande partie des frais pédagogiques du Centre régional de Sablé.

En raison de la diversité des sources de financement des actions de formation ou de mission, il est malaisé de définir une procédure type pour les démarches à engager. On recommandera aux postulants à des stages de respecter les hiérarchies locales et nationales afin d'éviter l'enlisement des dossiers de demande faute de les avoir conduits sur les bonnes voies ; on recommandera également la patience et la programmation à long terme de ces actions — une année est souvent nécessaire pour voir aboutir une demande. Ces contraintes et ces délais ne doivent pas être considérés comme des obstacles insurmontables, mais bien plutôt comme une préparation au stage lui-même : c'est le plus sûr moyen de lui assurer le succès.

V. CONCLUSION

Comme on a pu le souligner, si les centres régionaux délivrent des formations solides, individuelles ou collectives, c'est essentiellement dans un but de disposer de formateurs dans des bibliothèques et des pays qui en sont dépourvus. Un stagiaire a pour rôle, dès son retour dans son institution, de prévoir l'information et la formation de ses collègues. Pour cette raison, un stage n'est pas seulement un exercice technique mais aussi une initiation et un apprentissage à la pédagogie. Tous les documents utiles sont donc remis au stagiaire, à charge pour lui de les adapter et de les utiliser à bon escient. On reconnaîtra cependant qu'il est difficile de procéder à des évaluations précises des résultats ultérieurs car il est un point commun à la plupart des stages : la difficulté de suivre l'évolution des stagiaires au cours des années qui suivent leur formation. Mutations, changements professionnels, bouleversements de tous ordres, mettent souvent un terme à des relations qui auraient permis un suivi. On est contraint, le message délivré, de s'en remettre à la destinée, à ses hasards, et de lui faire confiance. Cela suppose une conception très philosophique et empreinte d'abnégation du rôle des centres régionaux qui doivent, malgré les hésitations et les incertitudes, poursuivre leur tâche et prévoir d'autres programmes qui viendront compléter ceux qui fonctionnent actuellement.

L'objectif désormais, parallèlement aux enseignements sur les méthodes de préservation, est de venir en aide aux ateliers qui s'équipent de matériels, confrontés aux problèmes de maintenance. Nombre de pays et d'institutions, et pour des raisons diverses, se heurtent à la difficulté d'approvisionnement en pièces détachées et à l'impossibilité de recourir à des services après-vente rapides. Une initiation destinée à des techniciens ayant des connaissances pratiques minimum, est réalisable et souhaitable pour les réparations de premier niveau. Une préoccupation identique concerne l'approvisionnement en matières premières, plus précisément la reliure et la restauration : un stage sur l'analyse des matériaux et la vérification de leur conformité aux principes de la préservation, permettrait d'identifier les matériaux produits localement mais dont on ignore parfois l'existence ou dont on méconnaît les qualités, et résoudrait dans certains cas les problèmes d'achats à l'étranger. Il éviterait enfin le recours à des matériaux de mauvaise qualité pour les travaux de restauration et de reliure comme on peut le voir dans certains cas.

Cette énumération rapide prouve que la tâche des centres régionaux dans le domaine de la formation est loin d'avoir atteint ses limites et qu'il reste encore un long chemin à parcourir.

88-CONS-1-E

Professional Education for Preservation : an Overview

John FEATHER, *Professor of Library and Information Studies, Loughborough University of Technology, UK*

ABSTRACT

The preservation of information for use is now regarded as a major issue by professionals in all areas of information work. The topic is not, however, given an appropriate prominence in many educational programmes for librarians and documentalists, although it is taught in depth in almost all courses for archivists. It is argued that all entrants to the profession should have some understanding of the preservation issue and its relevance to broader theoretical and practical issues of collection management and information transfer. Finally, this is placed in the context of current educational trends and IFLA's own work in the preservation field.

INTRODUCTION

The conservation crisis in the world's libraries and archives is, in one sense, an insoluble problem. When we consider the statistics of embrittled books — to take but one problem — the numbers are expressed in terms more familiar to astronomers than to librarians. Fifteen million unique books in the U.S.A. alone are in serious danger, we are told. Physical and chemical techniques which will enable us to attack the problem on the scale which is needed may indeed be developed ; on the laboratory scale they already exist. But the financial resources cannot so easily be conjured from a test-tube or a gamma-ray gun. If one lesson above all has been learned in the last two decades of growing concern and understanding, it is that we must ultimately find managerial solutions to our physical problems.

Arguing along these lines in no way diminishes, and is certainly not intended to diminish, the importance of physical conservation at every level from industrial deacidification to the craftsman binder at his workbench. What is intended is to emphasise, first, the *scale* of the problem, and, secondly, its essentially *administrative* characteristics. The PAC Core Programme is properly concerned with every aspect of the field. The regional centres, for example, are involved in training conservators, and in research and development in conservation. *International Preservation News* carries frequent articles and news items on new techniques, new materials and indeed new understandings of old problems. Yet it would not be a misrepresentation to say that at the heart of PAC's message is the concept of awareness. The raising of awareness about preservation, and the remedying of widespread ignorance about it, have, in my view, been the greatest achievement not only of PAC itself but of the whole preservation "lobby" in the profession around the world in the last decade. Education by itself will never solve the preservation problem, but without education no solutions will even be sought, and none therefore will be found.

It is, however, easy to say that education is needed, and that library and information science schools should include the subject in their programmes. It is not impossible to devise a curriculum, and even to find the literature to support it.[1] That, however, is the second stage. We must first establish not merely that those who are committed to it think that preservation is important, but that it is important enough to be a major issue to be presented to the people who will lead the profession into the second and third decade of the 21st century. Those men and women are passing through the schools now and in the early 1990s.

Maintaining a reasonable perspective is important here. Those who are concerned about preservation have become a vociferous and powerful group in the profession in the last decade. Within that group, however, we have to be aware that some of the most fundamental issues are not yet universally understood by policy makers and managers. In particular, there is still a regretable tendency to associate preservation and conservation with rare books and manuscripts. Preservation does indeed have a special place in rare book librarianship, where there is a proper emphasis on the integrity of the physical object and the evidence which it affords. On the other hand, the preservation for use of information in all media is of concern to all information professionals, and an integral part of good professional practice. It is this approach which sits most easily with the broader philosophy of late twentieth-century librarianship. Preservation is an aspect of access to information, preserving the information resource, in whatever medium, for the benefit of users.

THE PRESENT POSITION

At the present time, the most intensive educational effort in this field is directed towards archivists.[2] Traditionally archivists have been even more aware of preservation as a issue than have rare book librarians, and hence expect that new entrants to their branch of the information profession will share that awareness and interest. The library and information science schools have responded by providing appropriate courses as an integral part of archive education programmes. Some of these, in countries as different as, for example, Australia, Peru and Kenya, include a substantial element of practical work at the bench or in the laboratory.[3]

Among librarians, however, there is also a perceived need for a greater knowledge of preservation. The specific expression of these needs varies, but they can be summarised as falling into two broad categories : the management of preservation programmes, and practical conservation work. It has been generally understood that it is preservation management which is the proper sphere of the information professional, and hence of the library and information science schools which educate them. That does not, however, exclude the need for an understanding of the techniques and techniques of conservation, repair and restoration.

Probably the best known course for preservation managers is the two-year programme at Columbia University, New York, where the School of Library Service has rightly won international acclaim for its pioneering work. The numbers involved are small ; a maximum of 24 students graduate each year. But of course the demand for such graduates is also fairly limited. The expressions of concern which are now commonplace have not always been reflected in making appointments at a senior level even in academic libraries. Moreover, it is doubtful whether the Columbia programme could, or indeed should, be replicated elsewhere. It draws on the unique human, educational and bibliographical resources of New York City and is aimed at the North American market.

Elsewhere in the world, including other library and information science schools in the U.S.A., the usual pattern is for one or more companies of the professional degree to deal with preservation. The content varies widely.[4] In the United Kingdom, there has been a trend over the last few years towards regarding preservation as an aspect of library management.[5] This reflects the practice of a number of major U.K. libraries, as well as a growing body of educational and professional literature arguing the case for such a development.[6] Although there are some suggestions of such an approach in other countries, there is no apparent trend for a systematic move in that direction. It seems that in North America, and indeed elsewhere in the world so far as we know, preservation is most often encountered in its "traditional" context of rare books, special materials, and the like.

FUTURE DEVELOPMENTS

It is not the purpose of this paper to argue a case, but rather to report on the present position and to lay the foundations for discussion by both practitioners and educators. Even so, in looking to the future we have to consider whether a coherent pattern of development can be proposed, even if it will be subject to many local divergences and modifications.

It was suggested in the introduction to this paper that there is a growing perception of the physical crisis in the world's libraries and archives, and a growing understanding of the essentially managerial to a solution on a scale which matches the scale of the problem itself. This in turn suggests that preservation is an issue which is pervasive, as well as extensive, and should be given an appropriate prominence in professional education programmes. In effect, IFLA itself has recognised the centrality of the subject by the establishment of the PAC Core Programme.

Nevertheless, it is recognised that the climate of library and information science education is one which increasingly emphasises information at the expense of information media. That is as it should be, for it is an accurate reflection of our contemporary perception of ourselves as a profession engaged in the facilitation of information transfer. Preservation, however, as had been suggested, can be seen as an essential element in the information transfer process. Information can only be used, except in the narrow personal sense of recall from memory, for so long as it is preserved in some physical form. Whether the medium be a floppy disk, an illuminated manuscript or a videotape, the information is therefore only as durable as its carrier. Hence, the preservation of the medium, even if only for a comparatively short period of time, is the prerequisite to the availability of the information itself. It is against that background that educators now have to consider the proper place of preservation in professional education programmes.

At the IFLA General Conference at Brighton in 1987, the Section on Conservation and the Section on Education and Training formed a joint Working Group to develop guidelines for the teaching of preservation in library and information science schools.[7] During the Paris conference, we hope that the final version of these guidelines will be agreed so that the document can, in due course, be more widely disseminated. Without improperly anticipating the outcome of the Working Group's deliberations, it is permissible to indicate the broad lines along which we are thinking.

First, it is argued that there is a strong case for the inclusion of some minimal consideration of the preservation issue in all educational programmes leading to professional degrees or qualifications for library, archive and information work. Even the most minimal consideration of the topic in a course required of all students would be an advance on the present position in many library and information science schools throughout the world. Two or three lectures can at least present the major issues in an appropriate intellectual and professional context, whatever that might be. Clearly the content may vary according to the broad educational objectives of the course, the level at which it is aimed and the country or region in which it is taught.

Secondly, there is a clear need to continue and to develop further existing specialised courses. It may well be, however, that the orientation of such courses will change. Preservation is as appropriate for courses on serials, on collection management and on library building planning, for example, as it is for those on rare books or special materials. This is already reflected in the practice at a number of schools throughout the world. The general incorporation of the preservation concept into professional consciousness, as is envisaged in PAC's contribution to the Medium-Term Programme for 1986 to 1991, is clearly advanced by such a course of action.[8]

Thirdly, there is the more difficult question of highly specialised courses for archivists and others for whom preservation is a major area of professional concern and activity. The difficulty arises from the variety of approaches which can legitimately coexist. The archivist, the preservation manager and the rare book librarian, to take only three examples, have much in common, but there are also many significant points of divergence in priorities and attitudes. It is clear that preservation is central to the training of archivists and records managers. They are dealing with unique documents, even if those "documents" are archival copies of electronically encoded data, so that the loss of a document entails the total and permanent loss of all the information which it contains. The preservation manager, however, is still a comparatively uncommon phenomenon. Preservation expertise is still more usually found among rare book librarians than among their colleagues with responsibility for the management and maintenance of current collections. Such expertise, however, is by its nature highly specialised, and inevitably emphasises the physical object rather than its information content. The greatest need of all is for senior managers with a sympathetic understanding of the preservation issue in its broadest sense. It is in that area above all that educational effort is needed. The library and information science schools, with so many demands on limited time and resources, will not find it easy to make such an effort. Pressure from the profession at every level from local to international will be a critical factor in achieving a positive result.

CONCLUSION

This paper is necessary, and the work on which it has drawn has been necessary, because of the reality and the perception of the preservation crisis throughout the world. The neglect of the physical basis of information transfer cannot be justified in the light of what we now know. That neglect is, to a significant degree, a consequence of ignorance rather than malice or stupidity. Ignorance can be remedied. The central theme of this paper is how that is being achieved, and how those efforts can be made more general and more effective.

There are very few library and information science schools in which nothing is taught on preservation. It is, however, equally true that there are few in which it is presented as an issue of general professional concern. The free flow of information, however, ultimately depends upon the integrity of the information resource itself. That integrity can be maintained only by the physical survival of a suitable medium of storage and access. It is in that form that preservation is one of the key issues of information work in the last decade of the 20th century.

Educational programmes can be devised which do not make unrealistic demands on available financial and human resources and yet answer the needs perceived by librarians, archivists and documentalists throughout the world. The objectives of such programmes will vary in detail, as will their level, intensity and content. The principle, however, is constant : the need to ensure that coming generations of professionals have a proper respect for the material from which they derive the information with which they work. If we can achieve that, then we will have made a significant contribution not only to the preservation of knowledge but to its advancement.

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92-INF-2-E

Needs for Standards in Office Automation

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ABSTRACT

This paper introduces to presentation standards in the office automation area. The existing interdependencies between office automation technology, information exchange in an open system environment and multimedia document editing are analysed, and the current standards for document presentation are highlighted. The paper concludes on the impact of standards on open communications.

1. THE OFFICE AUTOMATION PARADIGM - FROM PAPER TOWARDS THE PAPERLESS OFFICE

Today, in the second generation of office automation, the production of documents is done electronically using textprocessors, desktop publishing software, laser printers, electronic mail, etc. Multimedia documents are created on advanced workstations like PCs, indexed and distributed over local area networks, stored on file servers, co-produced and updated by different users, and finally published, copied, mailed and archived. Nevertheless, the generic nature of documents has not changed ; it has always been to carry information produced by someone and read by others.

The most universal medium for exchanging documents until now is paper whereas new and more advanced technologies allow for a complete processing of documents electronically. But software and equipment are not homogeneous, leaving users with their own preferences. A unique document presentation format and a common support medium is however required, if the information will be accessible (say readable) for all the actors whether they are machines, software, or human beings. And this exactly is where standards come in.

The diagram below shows the different interactions depending on whether the support medium is paper based or electronic based. As the paperless or electronic office seems to be somehow unrealistic (at least for the next decade), conversion among different media (voice to paper, paper to ASCII, ASCII to voice) and among different presentation formats become the challenge of the future. Just thinking about the variety of textprocessors that are around, it is far from being evident that a document produced, for example, under PC-WORD can easily be retaken on a mainframe computer (see 1st schema below).

The impact of standards in such a context is vital as the following example shows. Let's imagine 4 different file formats resulting from different textprocessors. To support all file formats by all textprocessors, we obviously need 4 x 3 conversions from one format into another one. Using a standard interchange format, the number of conversions can be reduced to 4 x 2. (In general, the gain can be calculated as following : m x 2 instead of m x (n-1) with m the number of textprocessors and n the number of file formats supported).

Standard document interchange formats ***SDIF*** take care of the formal structure of a document (its presentation or layout), thus playing a pivot role between two different formats, e.g. WORD <-> SDIF <-> WORDSTAR. The consequences are evident : software can be developed regardless of other vendors, increasing the market offer and improving software ergonomics.

2. FROM TYPEWRITING TO STRUCTURED DOCUMENT EDITING

Until a recent past, texts have only been based on an alphanumerical character set called ASCII (according to the binary representation of our alphabet). These texts have been produced first on typewriting equipment, then using dumb terminals, and nowadays textprocessors. The result was essentially to produce lines and pages of text showing the same typographic quality than typewriters. The limitations for producing a scientific text have been evident, thinking of mathematical formulas, greek letters, or graphics.

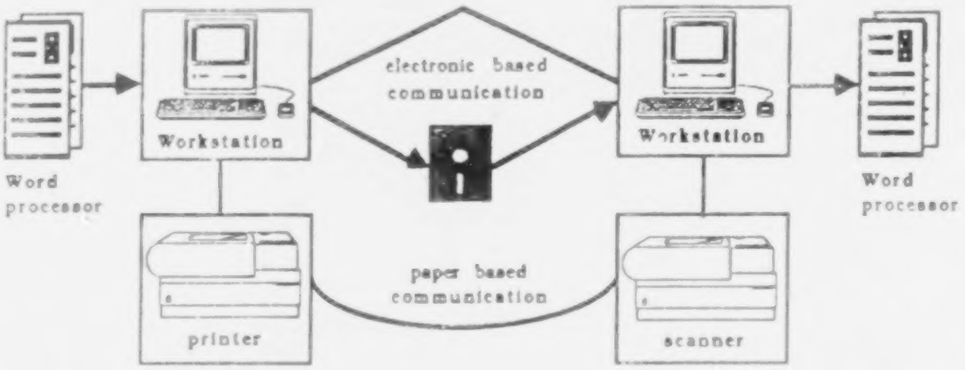
In any case, the result is a revisable document which is enhanced with specific commands called markups in order to produce a printable document. The advantage is to obtain a representation of a document which is device independent and which allows for future reprints (of the same quality). However, the distinction is purely conceptual and hardly to be found in implementations.

The model of processing a document can thus be presented as follows (see 2nd schema below) :

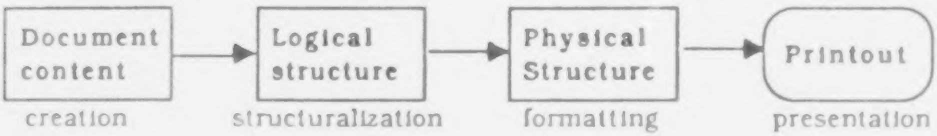
Document content is significant for the raw information contained by a document : text, numerical data, tables (spreadsheets), graphics, (mathematical) formulas, (bitmapped) images and so on. We sometimes speak of multimedia or compound documents. A new generation of editors allows for an integrated processing of compound documents. The most famous example actually in the market is PAGEMAKER offering an integrated toolbox for pagesettings, for text editing, and for simple graphics.

The *logical structure* of a document is composed of the title, chapters and paragraphs, headers and footers, etc. This structure is totally independent of the final presentation, and refers only to the author's conception about links between different parts of the document. Typical problems associated with the logical structure are the automated numbering of paragraphs, the handling of indexes and footnotes, the generation of a table of content etc. It especially allows to design a geometric structure of frames in which the different elements of a compound document (text, image, etc.) can be encapsulated.

Few so-called structured editors actually allow to build and to



Document Interchange Facilities



exploit the logical structure of a document independently of its content, and to associate a specific processing to a given type of frame : MORE, THINKTANK, GRIF... The next generation of editors will allow to design different types of documents (letters, contracts, etc.) before even thinking about their content. ODA for Office Document Architecture is an international standard for describing the logical structure of a document.

The *physical or typographical structure* refers to the typesetting or layout of the different "textual" elements. It describes the character fonts to be used, their size, the colour, the style (**bold**, *italic*, underligned, ...), the margin (central, right/left aligned) and others more. The procedure of adding typographic descriptors into a text is called markup and may be done when creating a text or apart. A standard generalized markup language, called ***SGML***, exists for the definition of descriptors, formatters like TROFF or TEX for off-line processing. ODA as well includes a description of the physical layout.

When finally publishing a document on paper or on a terminal, the typographic attributes are translated according to the capabilities of the displaying device. It is therefore easily possible that certain attributes are not recognized (like underlign for a dumb terminal, or colour for black & white printers). Whenever the video presentation of a text equals its printed copy, we call that ***WYSIWYG*** (what you see is what you get). Anyway, the notion has its limits. POSTSCRIPT and DISPLAY POSTSCRIPT are de facto standards that allow device independent high-resolution publishing.

A number of international and *de facto* standards have so far been mentionned that may require a closer look. All of them are aiming at the structure of documents and a device-independent description of its printable format which will play an important role in the development of future software facilities for document processing and exchange as the same quality may be expected for electronically transmitted or reprinted documents as for paper copies or facsimiles.

3. PRINTING THROUGH POSTSCRIPT

The major focus of a printable representation of a document is being independant of the printing device itself. First of all, because attributes may be understood differently by different devices ; secondly, because not all of the devices show the same degree of capability. Contrary to traditionnal matrix printers, non impact printers (especially laser printers) show no limitation at all about printable images. Differences are only in resolution.

For being independent and universal at the same time, a new model was necessary : the *Page Description Language* ***PDL***, making the description of a page a computer program in a specific language. The two most well known are T73 from CCITT, or better known as ODA, and POSTSCRIPT from ADOBE.

Whereas ODA uses a declarative approche, POSTSCRIPT uses a procedural description (just like InterPress from XEROX), not telling what sould be obtained, but how to operate for achieving the result. That means all assignments, calculations, conditionned instructions, loops, even variables are contained in the language itself.

POSTSCRIPT graphics language, today implemented by most of the current laser printers and typesetters, was originally created as a programming language to be executed on (laser) printers, and can be used to achieve complete device-independent graphics. An image description, page by page, is prepared as a POSTSCRIPT program and that program is sent to the printer. The program executes inside the printer, able to interrogate its environment, and as a side effect of that execution, the image is constructed and printed. This evolution was possible only since intelligent printers have been on the market. CANON was the first to introduce low-price laser printers containing a microchip as a processing unit and a serial communication interface to microcomputers.

A POSTSCRIPT image representation can be produced on a workstation (or elsewhere) independently of the receiving environment because the program that builds the image is not executed until the details of the receiving environment are known (resolution, paper size, ...) ; this gives more liberty to the sender and more responsability to the receiver.

For example, a POSTSCRIPT program can create shades of gray by calling halftone functions inside the printer which create a certain pattern of dots or lines that will appear to have the correct colour of gray. Or it can include a more detailed picture for B4 sized paper than for A4 paper. It can draw a logo if the printer has enough resolution, and leave it out for lower resolution devices, trusting that letterhead paper can be put into the papertray for the occasion.

The most surprising phenomena however is the resolution of graphics. Thanks to the recalculation of necessary dots in the receiving environment, a line appears to be a line (and does not become a stairway), triangles keep to be triangles, and characters are always well shaped whatever the fontsize is.

The basic principles are simple : all arguments are put on a stack except operators which are executed immediately. Some global variables define the current path, the pencil size, the current font, etc. Basic operators are draw, fill, and write. For drawing a rectangle, only a few instructions are needed using some variables as pencil type and size, etc. Once a figure is designed, it may define a procedure so to be used in iterations or more complex figures. In principle, there is no limit to the size nor to the complexity of figures. Even character fonts appear to be nothing else than a set of paths.

POSTSCRIPT is so successful because it has done a nearly-perfect job of standardizing the execution environment in which the programs will execute.

4. MARKING UP A PUBLICATION BY USING SGML

The Standard Generalized Markup Language ***SGML*** has been developped by the International Standard Organization, and is known as ISO/DIS 8879. The basic principle is that of the generic markup of the structural elements of a document without regard to their presentation, which is regarded as a separate issue. This is in contradistinction to typographic markup, where the important issue is how the text is to appear when published. With SGML, then, the font and style are not considered when marking up the document ; formatting and all the other detailed information being contained in a separate style sheet are thought of as another link in what could be described as the publishing chain.

The reason for this concept is in its practice. SGML has been stable for some time as it is based on the IBM product Document Composition Facility (DCF) Generalized Markup Language (GML) developed by Charles F. Goldfarb. Considered to be a standard for document preparation, it addresses the needs of editors for publishing (computer) journals, scientific publications, books, public announcements and many more.

Its intention is though not to be a tool for the author of a document, but for the publisher. Given that, if the text is marked up using a standard method, many benefits accrue. First of all, the publication process can be speeded up because there need be no rekeying of the text and further proof-reading. Then, with a standard approach to the preparation of the computerscript, it can be typeset in accordance with the publisher's house style. Camera-ready copies need no longer be asked for, and even the author may no longer worry about the typographic codes and presentation rules of his various publishers.

SGML is a declarative language describing the logical structure of a document and the style to be used in the way that evidence is given to what has to be done, but not how. In a certain analogy to computer programming, a SGML document can be seen as an unformatted source that is compiled to a formatted, printable document to be executed by a print device.

The markup of a SGML document is obtained in a very righteous way, each element requiring a markup is enclosed in brackets, each bracket followed by symbols :

start-tag : <label attributes>) text **end-tag** : </ label>

Writing a SGML document requires some basic knowledge about 50 tags like <tp> for title page, <fn> for footnote, <p> for paragraph, or <toc> for table of content. But there is a lot more potentiel in SGML as for example the introduction of a meta-language which makes it possible to declare new labels and new classes of entities with their own structure and own properties. Another facility allows to include specific commands for a given environment.

<td> Needs for Standards in Office Automation
<st> or the normative impact of standards on open communications
<ab> Abstract
<hl> the Office Automation paradigm — from paper towards the paperless office
<p> Today, in the second generation of office automation, the production of

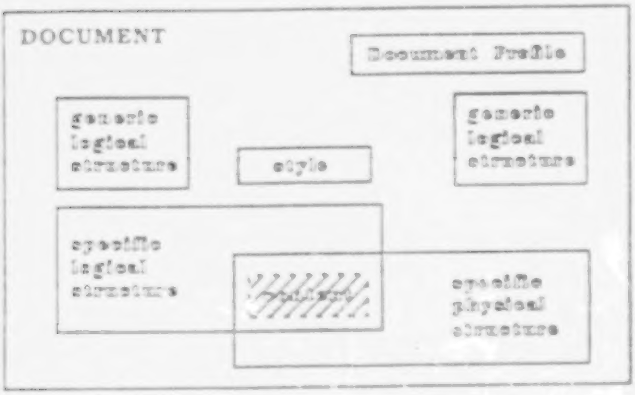
Example : Markup of the beginning of this paper

The usage of SGML seems to be heavy for an unfamiliar user, but there is software that provides SGML syntax by using function keys. The advantage of SGML is though to offer at least a syntax for describing document objects. Even if the software packages that are using SGML cannot be considered as an implementation of the language, translations from a specific language towards SGML can easily be imagined. In this sense, interchange of documents between heterogeneous systems seems possible. And every dumb terminal user is, in principle, able to produce documents of good quality!

5. EDITING TEXTS BY USING ODA/ODIF

The acronym ODA stands for **Office Document Architecture**, which actually has been recognized as the international standard ISO 8813. ODA is, at the same time, a revisable and printable document format born out of the idea that the major part of a document are characters duplicated in both formats. The first objectif of ODA was though to represent the logical and physical structure of a document without redundance of the content. Another reason was performances, especially when using microcomputers. Keeping the two separate structures would imply to make changes first on the revisable format, and then to reproduce the printable format.

The result was a declaratif formalism with two tree-like structures pointing to the same leafs of content. This double structure induced another complexity, the one of handling lines and pages. Before updating parts of the document, eventually end-of-line or page markers have to be taken off.


DOCUMENT
Document Profile
generic logical structure
style
generic logical structure
specific logical structure
specific physical structure

Organisation of an ODA document

The overall structure of an ODA document as shown in the schema above distinguishes between logical and physical structure, and between generic and specific structure.

The difference is that the generic logical (or physical) structure defines a class of documents which are all built according to the same model in logic (and layout). The specific structure belongs to one specific representative of a given class. Example, a newspaper is always written in the same way, but not all the editions have the same number of articles or the same size.

The generic physical structure defines the layout structure for a class of documents whereas the specific physical structure actually corresponds to a concrete printable format. It is hierarchically organized in pages or groups of pages, representing a rectangular surface as a reference for positionning the content of a page. Furthermore, there are frames and blocs for placing images, texts, and graphics on a page, defined as rectangles in parallel to a page, and finally content portions carrying the information, the attributes for its presentation and a reference to the content architecture.

The imaging process goes down the hierarchy collecting information at page level, and then prints the different content portions by taking care of their position according to frames and blocs. For overlapping areas, transparency and imaging order attributes decide about foreground and background visibility. Confidentiality attributes may inhibit impression. Presentation attributes provide typographic information.

The editing process takes care of the specific logical structure of a document already at content entry time. Everytime a component is created, the generic logical structure is questionned, and the corresponding type of content is selected, e.g. text. Once a document is finished, the layout process is activated, building from the specific logical structure and the generic physical structure a specific physical structure or representation format. This generation of links is essentially based on so-called layout references, built in the specific logical structure as layout object class attributes.

Concerning the logical structure of a document, ODA definitely presents a considerable progress related to existing text processing systems. The lack of a basic procedural language and the search for compatibility however made ODA adopt a concept of a content architecture which already prove restrictive.

6. CONCLUSION

The ODA document presentation standard is one of the few cases where a standard, conceived for next generation systems, actually is in advance to the implementation of such systems. Without concept testing in the market, and in the necessity to assure compatibility with the current generation, defining a new standard is not an easy task.

Concerning the physical representation, PDLs are a more powerful interface to printing systems than for example the physical structure of ODA which can be observed in the market: all printer manufacturers have actually implemented a page description language. The importance of printable formats must therefore be researched in other areas, as eventually telecopier systems, and especially electronic archives on CD-ROM.

The current European program for research ESPRIT actually runs a number of projects which already brought very interesting results to the market making some dramatic changes expectable for the years to come.

Projects like HERODE and SOMIW already implemented ODA and developed interactif editors (3rd generation document processors) for multimedia document generation. PODA, or Piloting of ODA, implemented an ODA Interchange Format, called ODIF, succeeding in exchanging documents among workstations via a local area network. The documents could be revisualized despite the fact that the underlying wordprocessors have not been fully compatible. MULTOS is an archiving system for multimedia documents, based on optical disc technology; and ASTRA is a first attempt to integrate into a single and cohesive system advanced workstations, scanners, laser printers and storage devices. Only based on an open system concept, this project integrates pilot implementations of workflow management, multimedia document manipulation, and computer aided document indexing and retrieval.

All these projects rely on and wouldn't be possible without **standards**.

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Message Handling Systems Electronic Data Interchange : An Introduction to Converging for Electronic Messaging

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ABSTRACT

X.400, the international standard for interconnecting electronic messaging systems, consists of a series of recommendations for Message Handling Systems (MHS). Developed in accordance with the Open Systems Interconnection (OSI) Reference Model, it is one of the first application or top layer standards to be ratified. Electronic Data Interchange (EDI) is a series of standardized message formats, primarily oriented toward business transactions. This paper introduces both standards and outlines how they will interwork to benefit the international library community.

Introduction

X.400, the international standard for interconnecting electronic messaging systems, could become the most successful standard in the history of information technology. A recent report by Ovum Ltd. suggests this is attributable to a concomitant interest in Electronic Data Interchange (EDI)[1]. EDI is a series of standardized message formats, primarily oriented toward business transactions, used for inter-system communications. It is the promise of X.400 as the foundation or "backbone" for interconnecting office systems (particularly for EDI) that accounts for the widespread and adoption of X.400 by software vendors, telecommunications carriers and users. The confluence of these two, and related standards, is perhaps the most significant recent development in Open Systems Interconnection (OSI).

This paper provides an introduction to the X.400 and EDI standards and outlines their complementary relationship. It also presents some suggestions on how they will be applied to the bibliographic environment. In this context, the most immediate impact of the X.400 and EDI standards has been in the development of an international standard for interlibrary loan — the ILL protocol. However it is library acquisitions that may prove to be the greatest beneficiary of X.400 and EDI. Broader implications of these standards for library communications will also be explored.

Origins of X.400

Early electronic messaging systems permitted users connected to a computer system to send and receive messages from each others' terminals, using the mailbox concept (figure 1). This model evolved to permit access to users not directly connected to the system via a data communication network. Use of these early forms of computer based message systems (CBMS) were primarily restricted to closed organizational contexts such as large corporations. The use of non-standard, proprietary messaging systems meant that interconnection was not possible. Unless a user had access to numerous systems, the range of people with whom one could communicate electronically was greatly restricted.

In response to the limitations inherent in these early systems, the International Federation for Information Processing (IFIP) defined a model for message handling in 1978 which was the genesis of X.400. IFIP's contribution was the recognition that message exchange between systems and networks was impossible without mutual agreement on message standards. The message handling model was further developed within the International Telegraph and Telephone Consultative Committee (CCITT), the body responsible for establishing standards for the postal, telegraph and telephone administrations (PTTs) throughout the world. This work culminated in 1984 with the X.400-Series of Recommendations.

This new standard, commonly referred to as X.400, is a series of technical specifications which provide for the interconnection of multivendor electronic messaging systems on a global scale. X.400 provides store-and-forward services whereby messages are stored in an electronic mailbox until the recipient is ready to receive them. A revised version of X.400 which provides additional features was ratified in 1988[2]. The development of X.400 in CCITT has been a collaborative effort with the Organization for International Standardization (ISO). The corresponding ISO standard, termed MOTIS (Message Oriented Text Interchange), is generally both technically and editorially aligned with X.400[3]. The terms Message Handling System, MHS and X.400 are used interchangeably in this paper and all refer to the concepts, standards and systems based on the CCITT and ISO standards designated, respectively, X.400 and MOTIS.

General Architecture : Open Systems Interconnection Model

Open Systems Interconnection (OSI) is defined as the exchange of information among systems that are "open" to one another by virtue of their mutual use of the applicable standards. The objective of OSI goes beyond the simple transfer of information between systems : it includes "interworking" where systems are able to coordinate their efforts to achieve a common information processing task.

The OSI Reference Model is an abstract model which provides the conceptual basis upon which numerous related standards for inter-system communications have been defined[4]. It provides the technical infrastructure upon which to build standards, called protocols, for applications. The OSI Reference Model is hierarchical, with a seven layer division of overall system functionality (figure 2(a)). Each layer provides a different function and is supported by the services of the layer below. The upper 4 layers are concerned with functionality which ensures that the information exchanged between users is delivered in a correct and understandable manner. The three lower layers provide the basic network capabilities required for data exchange. X.400 is often described as the first OSI standard developed for the highest, or application layer of the OSI Reference Model (figure 2(b)).

Message-Handling Systems : Functional Model

The highest level view of the X.400 model (figure 3) is from the perspective of the message handling environment, which is populated by USERS. It is important to emphasize that in the X.400 environment a user can be either a person or a computer process. Users are served by USER AGENTS (UA), computer processes that are responsible for assisting in the preparation of messages and interacting with the MESSAGE TRANSFER SYSTEM (MTS) to submit and receive messages on the users behalf. The MTS is made up of cooperating units called MESSAGE TRANSFER AGENTS (MTA) which operate in a store and forward fashion to transfer (relay) messages and deliver them to the designated recipients.

X.400 provides two basic components for messaging (figure 4) :

1. The Message Transfer (MT) service provides a general, application-independent message transfer mechanism which is achieved through the coordinated functioning of the MESSAGE TRANSFER AGENT(S) ;

2. The Interpersonal Messaging Service (IPM) makes use of the MT service, for sending and receiving a broad range of interpersonal message types including voice, image, telex, etc. The IPM is achieved by cooperating User Agent(s). In fact, the term interpersonal messaging is actually somewhat of a misnomer given its flexibility broad applicability to a variety of messaging requirements.

The separation of the message transfer components from the functions of USER AGENTS, which are concerned with message creation and processing, is the primary reason why X.400 enables communication between users (and systems) which may not be able to communicate directly. The MESSAGE TRANSFER AGENTS act as intermediaries in the exchange between systems which may be otherwise incompatible. Thus the interconnectivity for messaging offered by X.400 is made possible by the generic Message Transfer Service.

Message Handling Systems : Beyond Electronic Mail

There is an important distinction between what is generally termed "electronic mail" and message handling systems. Electronic mail refers to electronic systems which support interpersonal correspondence messaging, where messages are exchanged between individuals and are not relevant to a computer application. In contrast, message handling is the overall architecture for a wide range of telecommunication services based on the exchange of formalized message types relevant to computer applications (application processes). In message handling systems messages are structured according to various standards in such a way as to enable computer processing by the originator and the recipient[5]. Messages, in this sense, refer to any formalized, structured body of data that has meaning for a computer application. Message handling then, provides a single channel for the transmission or handling of structured messages.

There is little difference between the fundamental structure of an electronic mail message and other types of messages. X.400 supports a basic message structure consisting of an envelope and a content (figure 5). The envelope in the X.400 message and the postal envelope are analogous in function and structure : functionally, the envelope carries the information necessary to relay the message content within the message handling system ; structurally, the envelope is separate from the message content that it carries. The message content is the information that the originator wishes to have delivered to the recipient. In order to permit electronic processing of the envelope's contents (message) in telecommunications networks and computer systems, X.400 specifies the permissible message content types that can be sent. In addition to these ordinary text messages, X.400 can handle any message type that is acceptable to a group of users, on a bilateral, national or international level. This flexibility is derived from the basic X.400 message structure. The real impact of X.400 derives from its ability to support message body parts including voice, text, facsimile, and various structured business-oriented messages such as those required for electronic funds transfer. The significance of X.400 is its ability to support a wide range of message handling applications.

One example of the general utility of X.400 is demonstrated in the ILL Feasibility Study carried out during the past year as part of the IFLA UDT Core Programme. This study recommended X.400 as the basis for ILL messaging in a pilot project involving the National Library of Canada and the British Library Document Supply Centre[6]. This recommendation is not only relavant to these two organizations ; it is likely that X.400 would be the optimal means of interconnecting libraries using the ILL protocol in many other areas of the world.

X.400-1984 to X.400-1988 : Nature of the Evolution

A notable enhancement in the 1988 X.400 Recommendations is the recognition of the personal computer as a unique type of terminal device[7]. Previously, the User Agent was assumed to be available to the Message Transfer System at all times. However one cannot assume that a PC is continuously available to the network as it is typically used for a variety of purposes and often switched off. To address this situation, a Message Store (MS) has been defined to serve as an intermediary between the standalone PC and the Message Transfer Agent. The PC, or a messaging system based on a Local Area Network (LAN), can now interrogate the Message Store to retrieve any messages that have been collected.

Provision has been made in X.400 1988 for interworking with physical delivery services such as the traditional postal services or courier services. This feature is particularly important during the growth of electronic messaging networks since some recipients (albeit an ever-decreasing number) will not be connected to the networks. X.400 1988 also provides additional security features. For example, messages can now be sent in encrypted form which helps to ensure the security of messages in the network as well as the authenticity of their originators and recipients.

There is provision in X.400 1988 for the use of an electronic directory to support message handling. The definition of the directory service is a separate standard, the X.500 Recommendations. The scope of X.500 is no less than a distributed global directory. X.400 describes the nature of the interactions with the Directory and the specific capabilities of the Directory that are to be used in support of message handling. It is expected that software vendors will offer X.500 directories as part of their products based on the 1988 X.400 standard.

A non-technical but important issue for the use of X.400 is the allocation of charges where more than one electronic mail service takes part in a message exchange. An international group composed of service providers, and PTTs are developing a basis for charging, based on the model used for telephone charges.

X.400 Implementation

The significance of X.400 for the library community is evidenced by the commitment of the PTTs in every major industrialized nation to an internationally available message handling service based on X.400 by the end of 1989[8]. While support for X.400 is probably more widespread in Europe, acceptance is growing rapidly in North America as major corporations and the federal governments in the U.S. and Canada move to link their internal electronic mail networks with suppliers and clients. Recently the powerful Aerospace Industry Association (AIA) in the U.S. successfully demanded that network service providers demonstrate (initially through a pilot project) the interconnection of their electronic mail networks via X.400.[9] The objective is to simplify messaging among industry members, clients and suppliers. One industry source reports that virtually every major software vendor and service provider is marketing or preparing to market an X.400 product[10]. A powerful force for adoption of X.400 in public commercial data communications networks and software products is national procurement standards such as the U.S. Government Open Systems Interconnect Profile (GOSIP) which requires that by 1992 data communications services or products used by government agencies adhere to the X.400 standard. It is estimated that by 1994, 150,000 computers and 500,000 personal computers will be communicating via X.400.[10] For libraries, the rapid adoption of X.400 by public carriers and software vendors provides many sources for messaging support. X.400 services will be available to libraries via public networks, private facilities in universities and various levels of government, or as in-house dedicated implementations.

Given the international acceptance of X.400 and the flexibility and power of this standard, vendors are shifting their attention to the applications that will make use of the X.400 connectivity. The "all-purpose" role of X.400 as a universal communications channel for computer-processable data in the form of messages is the real contribution of this standard and leads us to consider the convergence of message handling with specific, widely-used message standards such as that defined for business transactions — EDI.

Electronic Data Interchange (EDI)

Electronic Data Interchange, or EDI, refers to a set of standards for the computer-to-computer communication of standardized electronic messages. These electronic messages are derived from common paper-based business documents including purchase orders, invoices and, bills of lading. EDI is intended to supplant the use of paper documents for business transactions. The dependency on the exchange of such documents among business partners has become a serious obstacle to efficient operations. The benefits of EDI include increased efficiencies in internal operations and external communications, reduced overheads, improved information flow and turnaround time, and reduced inventories.

EDI, in its various forms, consists of 3 components : 1) A data dictionary which defines the content of data elements used in messages ; 2) A set of message (transaction sets) standards which define the format and data content of messages for specific business transactions, and : 3) A message syntax which defines the structure of the messages and additional information needed to exchange data.

EDI is not a new concept. There have been a number of EDI industry-specific initiatives in various countries. For example, in North America about 15 different EDI standards exist for various sectors such as the transportation, electronic, chemical, and grocery industries. Separate EDI standards were developed and used in the U.K. and other parts of Europe. The major obstacle to the widespread acceptance EDI has been the lack of a single, internationally accepted standard. The coexistence of these different EDI standards was not a problem in vertical markets where there was no need to exchange business documents across industry sectors. However, like message handling systems, EDI has evolved from a tool for communication in a narrow "closed" environment to a universal tool for "open" communications. The need for horizontal communication among sectors based on EDI is one of the major driving forces behind the development of a common EDI standard, nationally and internationally.

A new international EDI standard called EDIFACT (Electronic Data Interchange for Administration, Commerce and Transport) now under development should alleviate this problem. This initiative is being coordinated by the United Nations Economic Commission for Europe. (UN/ECE) and the formal body for standardization of EDI-ISO. EDIFACT standardization has progressed at a remarkable rate, due in large part to the organizational structure of UN/ECE which includes representation by groups from North America, Western Europe and Eastern Europe. ISO has approved the EDIFACT syntax (ISO (9735) and data element directory (ISO 7372) and about 20 related EDIFACT standard messages have been either proposed or initiated.

EDI and X.400

EDI was developed in a pre-OSI telecommunications environment which necessitated a wide range of message transfer arrangements[11]. EDI defines message content and structure but does not dictate how these messages are exchanged between systems. EDI standards are therefore independent of the message transfer mechanism to be used. In contrast, X.400 is essentially a generic message transfer technology which simply views EDI as another message type which may or may not have some unique requirements in addition to the many features it shares with message types already defined in X.400.[12] The benefit of the application of OSI-based technology such as X.400 to EDI is the flexibility that permits the application requirements defined by EDI to remain independent from the mechanism for message exchange. The potential of EDI and X.400 is complementary and accounts for the recent surge of interest in both standards.

Where large volumes of business data are exchanged between organizations a bulk file transfer mechanism may well be the most efficient basis for business communications. This has been the data transport mechanism traditionally used for EDI transactions. However in many other cases, there may not be regular communications between trading partners and the amounts of data may not warrant the use a file transfer mechanism. Similarly, the asynchronous nature of trade operations and the need for communications across time zones may call for a store-and-forward message-oriented approach. In recognition of this, CCITT is working on an approach for support of EDI applications in X.400, targeted for completion by the end of 1990. Rather than develop new standards for EDI, CCITT will use the evolving standards, particularly EDIFACT. CCITT is working closely with the EDI standards community, seeking input and offering suggestions for refinements to EDI Standards. The major benefit of X.400 for EDI is that users have an alternative, based on widely-implemented standards, to the proprietary networks that characterized previous use of EDI.

CCITT is developing a new class of User Agent (Pedi protocol) within X.400 which is equivalent to the existing standard called Interpersonal Messaging (IPM). This approach allows greater flexibility in defining additional services required by the application while continuing to make use of the basic Message Transfer Service (MTS) of X.400. Wherever possible, the work will make use of existing services already defined in the IPM. Security and authentication are much more critical requirements for EDI than most other message handling applications, given the need authenticate an EDI message, e.g. a legitimate invoice has actually been issued by the party claiming to have sent it. The equivalent to a "signed document" is also essential to the business transactions supported by EDI.

In addition to technical requirements, the widespread adoption of EDI is dependent on the resolution of legal issues such as the legal status of electronic messages, their contractual validity and status as evidence. A study of the many legal issues inherent in EDI messaging is being undertaken in Europe.

Implementation

In North America, Telecom Canada intends to link its EDI service, Traderoute, to its AT&T counterpart via what is being called the first X.400 standard connection for the exchange of EDI documents.[13] In Europe, the Commission of European Communities (CEC) has launched the TEDIS (Trade Electronic Data Interchange Systems) program to coordinate and promote the use of EDI in Europe.[14] Various associations within TEDIS representing European industry sectors are committed to supporting the EDIFACT standards. TEDIS is also backing the development of a specific X.400 protocol for EDI. As an interim measure, TEDIS has facilitated an agreement on a European guideline for the use of existing X.400 systems and services to support EDI messaging. The European Council of Chemical Manufacturers (CEFIC) has already selected X.400 as the basis for its EDI services. It is conceivable that EDI, rather than correspondence messaging, could prove to be the dominant application for X.400 within the next decade. IBM has announced a family of software packages that support EDI called the "expEDIte Datainterchange Series. These products, available for a wide range of hardware/software, support both the ANSI X12 and EDIFACT formats.[15]

The library function that will be most immediately impacted by EDI is acquisitions. Because EDI addresses the most fundamental business communication requirements, e.g. purchase orders, invoices, etc., it can be expected that the general infrastructure developed through the adoption of EDI can be used by libraries for those areas of their operations which require similar support. In the case of acquisitions, the potential applicability of EDI message standards is obvious. In May 1989, 4 key members of the book industry in the U.S. announced that they will explore the use of the EDI for communications with trading partners. This decision by Ingram, Baker and Taylor, Walden Books and B. Dalton is perhaps the first step towards the use of EDI standards within the bibliographic community. This group will continue to support the current standards of the Book Industry Systems Advisory Committee (BISAC) while facilitating the migration to EDI[16]. If, as for X.400, federal government procurement regulations begin to mandate support for EDI in new systems, it is expected that considerable momentum will build for EDI use in the library community.

Conclusions

The implication for libraries of the widespread international adoption of X.400 and EDI is that they can provide a readily available foundation for OSI-based library services. Systems and network services based on X.400 provide a standardized, readily accessible mechanism that libraries, like many other industry sectors, can use to support the requirements of its own applications. The X.400 and EDI standards will provide libraries with building blocks to use in defining strategies for improved inter-systems communications, and ultimately, improved library services.

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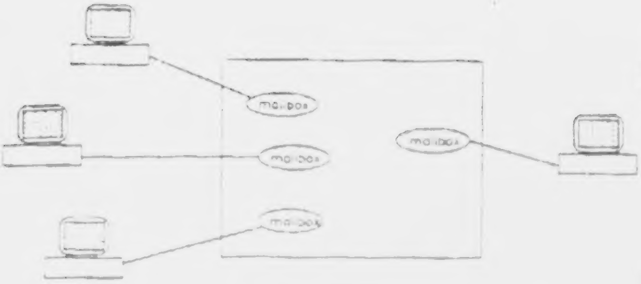


Figure 1(a) – Early Computer-Based Message System

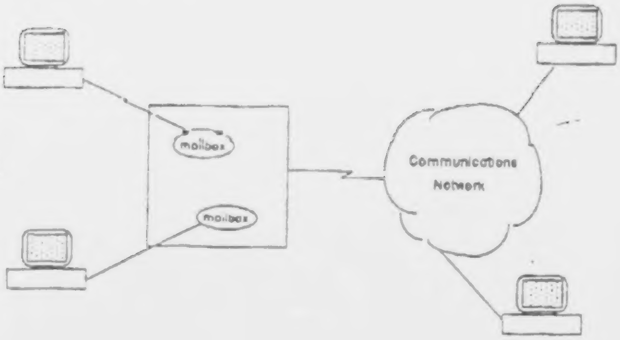


Figure 1(b) – Computer-Based Messaging System Accessible via Communications Network

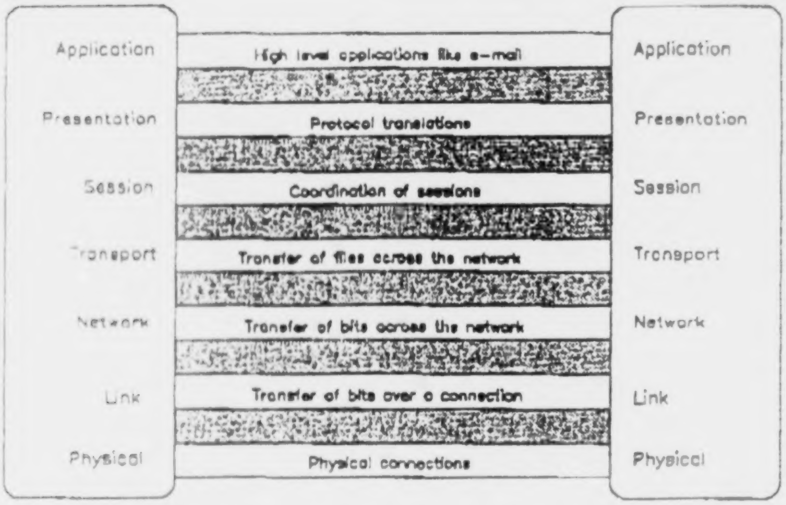


Figure 2(a) – The OSI Reference Model

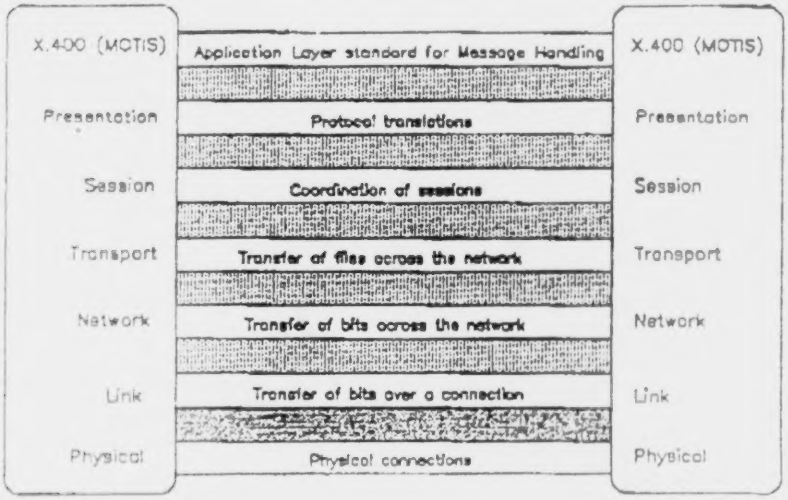
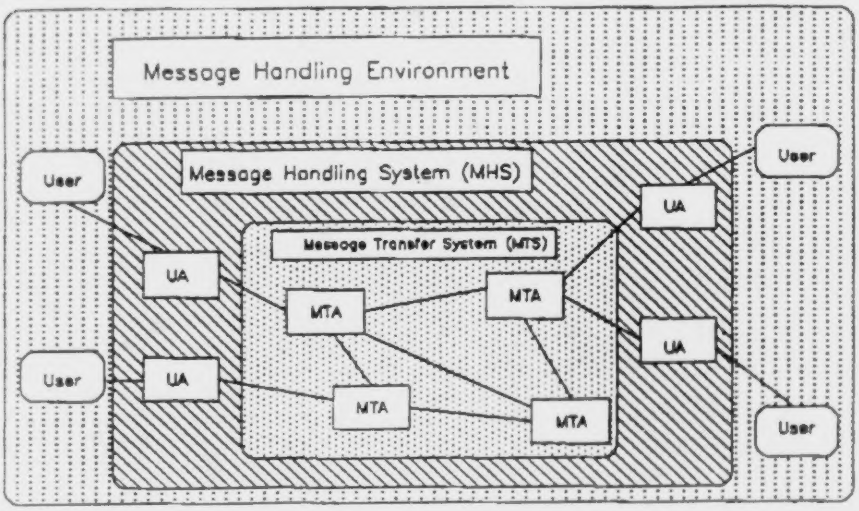


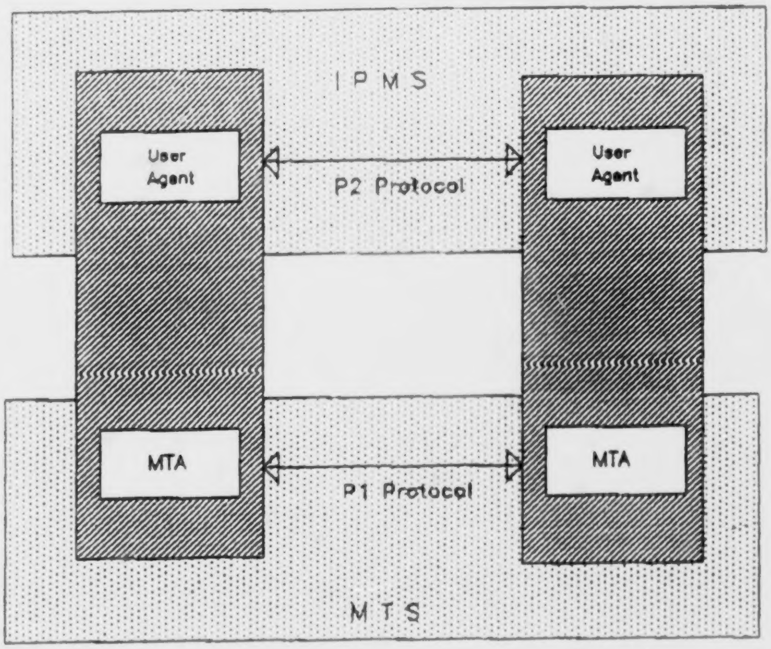
Figure 2(b) – The OSI Model with X.400 (MOTIS) as the top or application layer.


Message Handling Environment
Message Handling System (MHS)
Message Transfer System (MTS)
User
User
User
User
UA
UA
UA
UA
MTA
MTA
MTA
MTA

UA – User Agent

MTA – Message Transfer Agent

Figure 3 – The Model of the Message Handling System



IPMS – Interpersonal Messaging Service

MTA – Message Transfer Agent

MTS – Message Transfer System

Figure 4 – X.400 Service Components

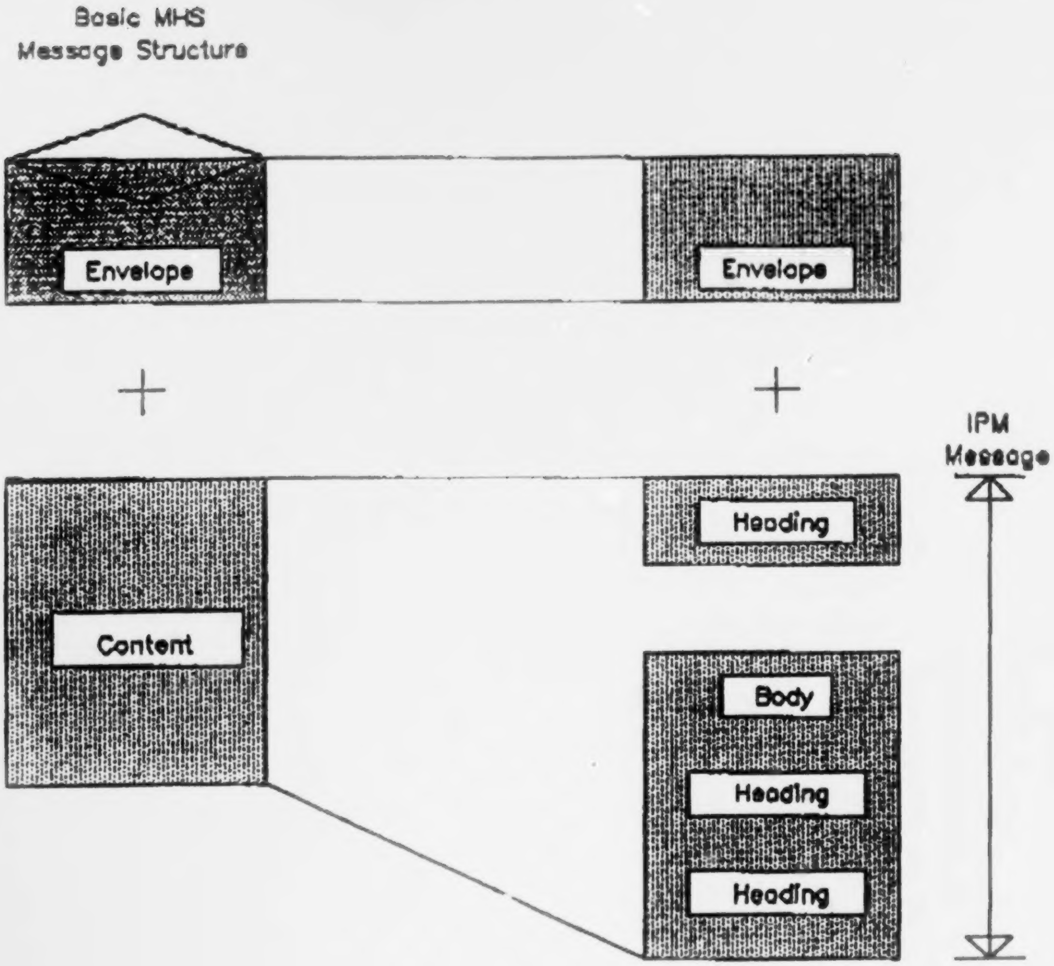


Figure 5 – X.400 Message Structure

17-BUILD-1-E

The Future Capital Funding of Library Buildings

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ABSTRACT

In anticipating future university library facility projects, five primary influences on the project cost are described : governmental conditions, construction conditions, national demographics, character of the academy and local human factors.

Based on a 1989 survey of university libraries, experience worldwide shows that four to ten years is commonly required from the date of the initial project proposal until occupancy, though fifteen years is by no means uncommon for either a main library or a major building addition. Funding is typically provided by national or state government, yet there is a wide variety of sources in a few countries and frequently a combination of sources is used. Charts illustrate survey data.

Four technical aspects create strong influences on costs : building technology, safety and general humanitarian conditions, size and nature of the collections, and the projected degree and type of use of information technology. This last influence is given special treatment based on recent experience in the U.S.A. and current thinking about library trends.

INTRODUCTION

What advice can one offer to university librarians throughout the world who may for the first time in their careers be facing the exceedingly difficult task of providing new or larger accommodations for their collections, staff and services ?

This paper begins with brief comments on five overriding influences on the funding of a university library building. The paper then gives attention to the time required to plan, finance and build buildings, a section on sources of funding, another section on the technical complexity of design affecting the overall size and cost, and a final section on the influence of information technology on cost.

A. FIVE PRIMARY INFLUENCES

Out of a large number of influences on the future capital funding of library buildings, five are chosen that seem to have special significance.

1. Governmental conditions.

The first of these influences is the administrative, political and procedural reality. Funding for a library building will not become available when there are higher priorities calling on such resources, and the timing of funds availability will be strongly conditioned by administrative policies and procedures. Assuming the university budget includes funding for capital improvements, the library will have to be among the top university facilities priorities before funding will be approved. Similarly, a state or national government may at times give priority to hospitals, roads, national defense, flood control, or social programs, thereby determining if and when a library may be financed.

There is also the influence of local procedure. For instance, with what proportion of full funding in hand does the university proceed ? In some instances a building will be built one segment at a time, or one part only may be completed under a particular governmental administration, perhaps only after all the funds are in hand or when a certain percentage of the necessary funding has been raised with university reserve or contingency funds being used to complete the project. Where private fundraising is depended upon for much of the funds, raising money for a building which is under construction is very difficult. Debt financing is occasionally used, by which process part of the building may be financed with available funds and the balance covered by a loan which is amortized and paid off over a five, ten or fifteen year period.

Where governmental funds are used or when funds are borrowed, there may be different appropriations : one for purchase of the site, another for architectural planning documents, and different ones for site clearance and utility preparation, for foundations, for the building floors and shell, and perhaps for furnishings. Provision of funds may follow a schedule based upon the percentage of completion of the construction effort as well. No matter what the local realities, the political and procedural conditions may very well be the most crucial influence on when and how a library building is financed.

2. Construction conditions.

This influence includes the problems of a building site, and for an urban library a major cost factor can be the cost of the site itself. Indeed, with increasing density of buildings in the center of campus, sites may become more difficult and thus more expensive. If the building foundation has to be on sand or requires rock excavation, or is built over major utility lines, the foundation costs will be greatly affected. Further, if environmental conditions for storage of the collections requires air-conditioning, the cost of the building is strongly influenced. And finally, if the library is going to rely significantly on information technology, especially major computer systems, the cost per unit of floor area of the building will increase. These practical concerns are merely examples of technological factors which can have a major influence on the cost of the building.

3. Population trends and professional needs.

Another major influence is the demographics of the region or country and especially the extent of the need to supply professional graduates. One example : if the numbers of college age people are going to be decreasing, the prospects for library funding would be much weaker than if the forecast projects a doubling in their number in the next fifteen years. And furthermore, if the state government feels an increased need for engineers, teachers, lawyers, doctors, trained governmental officials or graduates expert in computer applications, the university will need to respond. The consequential library program change and library building space needs can be understood by officials and funding may be easier to obtain.

4. Character of the academy.

Another influence is the distinctive nature of the campus, particularly the subject fields taught and the degree to which students commute to campus. It can be readily appreciated that most of the humanities and the historical social sciences and hard sciences place a heavy burden on substantial library collections, whereas such subjects as studio art, music performance practice, and some of the physical sciences require smaller collections composed of more contemporary materials. Generally speaking, residential universities housing most of the students on campus will need more reading spaces in the library than do those where most students commute to campus. The patterns will vary from place to place and culture to culture. The university's philosophy regarding how access to information and processing information through computers is provided can also alter use of the library and its building cost significantly. Thus the campus character will strongly influence the library program, its collections, its space needs and the call upon construction funds.

5. Local personnel.

Another major influence is the set of human factors. While the national or state Minister of Education may be the most influential person in deciding on library construction, the prospects for funding a library building will also be influenced by the academic priority given the library by the president of the university. The president's attitude and strength of leadership may be crucial. Senior officers of the university can frustrate or facilitate the priority setting process in favor of the library. And of course the head librarian is a major determinate. The librarian's prior experience, length of time in office, credibility with the university administration, leadership qualities and influence with major donors can be of paramount importance. A reasonably sound building plan and compelling argument for its construction may succeed or fail depending on whether the president and university officers regard the head librarian as competent ; for, if not, it will frequently be the case that they will permit a poor building situation to get even worse while waiting for a change in the position of librarian before putting the library building at the head of a list of priorities.

B. TIME REQUIRED FOR ACHIEVEMENT

Turning from generalizations to some practicalities, it may dismay a librarian to realize how long it can take to move from the first statement of need for new space until occupancy thereof. The length of time required to obtain funding is usually the major factor. The total time required is an important planning consideration since an inadequate building will limit collection housing and services no matter how talented the staff. Assuming that one can project with fair accuracy the year when the seating in the library will be inadequate, the collections can no longer be housed on shelves, and the staff cannot be properly accommodated in space available, one can work back from that date by estimating the minimum amount of time required for plans and construction. In fact, most building projects have delays of one sort or another and the total time required can be surprisingly long.

Every major building project includes time to have the programmatic justification made to university officers. Campus approvals and governmental approvals are needed. Funds may need to be sought for a feasibility study. Studies may be required to review possible alternatives or to study the adverse influence on the local environment. Design and construction documents must be prepared. Value engineering, energy use analysis, or site surveys for archaeological potential may be required. Dealing with displaced functions on the selected site can be a costly problem. Construction time is required, including delivery of materials and time for any special fabrication, testing of materials, even labor strikes. During many construction projects, the wrong material is delivered or the purchase specification was not correct, with consequent returns and delays, not infrequently with extra expense. In all of this there are financial requirements, sometimes at several stages as indicated above.

There is also the human tendency to prepare schedules and budgets that are optimistic and to underestimate delays and costs for all manner of reasons, not the least of which are the problems that turn up in the course of the project that were unanticipated. Of course if one were to take a completely realistic view of the time required, or even for the total expense, one may in fact discourage officials and potential private donors and thereby contribute to decreased support on the part of those providing financial help. So a librarian tries to be reasonably optimistic and hopes that problems can be surmounted through persuasion or skillful negotiation during the course of the project.

The context of the national economy at construction time can be crucial. The timing of the building project vis-à-vis inflationary trends is hardly less influential than are such national disasters as earthquake, famine, drought and floods or human disasters such as fire or war. Thus the financing of a library building is largely controlled by forces outside the power of the librarian or even of the university administration.

To give some sense of experience with respect to the time, the large addition to the main library at Stanford University took 138 months from initial proposal to occupancy and the subsequent renovation of the original building took another 96 months. The first proposal for enlargement was submitted to the university provost in December of 1966. It was 1980 when the new wing was opened, doubling the size of the main library. It was another eight years while renovation of the original wing proceeded in stages, including the structural rebuilding of the original book stack which was unsafe by the current building code for earthquake protection. Twenty-three years after beginning the project, a university that many would regard as financially well-to-do and excellently managed was able to complete a project to enlarge its central library building.

A picture of world-wide experience is provided in the data which follow. [Ready as handouts for IFLA — Paris] It can be seen that four to ten years is a common length of time from initial proposal until occupancy. (When one to two years were reported, one can surmise that, in most cases, construction time only was reported.) Interestingly, thirty nine out of forty two library buildings taking ten or more years were located in nine of the largest countries. In a number of instances, the total time ran from ten to fifteen years for a main library and the same for a major addition to the main library. More than twenty years were required in exceptional cases.

C. SOURCE OF FUNDING

The practice around the world varies. Although governmental sources are the predominant source in many countries, there are a wide variety of sources such that a useful generalization is rather hard to make. For some institutions, special taxes may be levied. Some institutions are able to sell bonds for capital funding. Governmental appropriations or governmental matching funds may be used. Church support may come from central or local offices. International foundations as exist (e.g., in Great Britain and Sweden) have provided support, sometimes matching grants. Mining and oil companies are examples of corporate assistance. Gifts from individuals during their lifetime or by bequest are other sources. There have even been instances when an institution has income producing property such that the commercial activity helps to finance the library building.

In the U.S.A. there are examples of financing by all the sources mentioned. In soliciting private gifts, it is known that a new central library building is more attractive to donors than is an addition or the renovation of an existing building. The availability of funds in the future is in part conditioned by the opinion of the government in power, influenced by a national or state priority given to higher education, and the tax incentives for private personal giving.

The recent experience of libraries in universities around the world may be indicative of sources. [Ready as handouts for IFLA — Paris] National or state governmental funding is by far the most common source, together accounting for the sole sources in two thirds of the reporting libraries outside the U.S.A. and for just under two thirds within the U.S.A.

However there is a variety of non-governmental sources found in a few institutions on every continent and in two thirds of all countries. There are instances of a substantial portion of funding for a particular library building coming from student association bonds, bonds paid back from the library operating budget, a loan from a Society for Promoting Private Universities, funds from an international foundation to support the particular university, and gifts from a fundraising effort (with contributions *from university staff, faculty, graduates, the general public and* private organizations). Frequently a combination of sources was used.

D. TECHNICAL COMPLEXITY OF DESIGN AND CONSTRUCTION AS DICTATING OF COSTS

When considering the cost of a particular library building in the future, it is not possible to say whether, discounting inflation, it will cost more or less on a square-meter basis. There are too many factors involved and, of course, conditions from country to country vary as do conditions from city to city and from a particular site to a different site. Yet there may be some merit in commenting on the influence of four technical aspects. These influence the cost and thus affect the required funding.

1. The first of these influences is building technology.

In theory a building which is "fast tracked" will be less expensive because it can be moved more quickly into construction and therefore minimize inflation during the course of construction. The application of tilt-slab techniques can also reduce expenses. Prefabricated components even of external structural members and curtain walls may substantially reduce costs, particularly where labor costs are proportionately high.

At present in the United States, there is a large amount of cubage between the underside of a structural floor and the suspended ceiling, space provided as a distribution area for ventilation ducts, plumbing, electrical systems and communication paths. One might hope that building systems will be developed in the years ahead that will reduce that cubage, thereby saving some of what creates today's building costs. At odds with this concept is the fact that as the systems being installed in buildings become vastly more complex, there is increasing merit to providing even larger interstitial spaces. In laboratory buildings today, which may in some measure suggest the future of certain library facilities, the space between the structural floor and the ceiling below is large enough for a person to walk about and to perform alterations or maintenance to the building systems.

2. A second influence consists of concerns for safety and general human well-being.

These concerns include structural and exiting safety, safety of materials (e.g., inflammability and asbestos free), lighting conditions, and mobility by physically limited persons. While such beneficial conditions may not add greatly to the cost of buildings, they certainly in the U.S.A. require a great deal of attention, extra effort by architects and engineers, extra approvals, and therefore more time required in the planning as well as some added expense. These costs may come from such details as braille signs on elevators and stairs and directories, exterior and emergency lighting, ramps, automatic door openers, etc. In some cases there is a requirement that book shelving be spaced so that a person in a wheelchair can turn around in the aisle and can reach the top shelf of collection shelving. The result in extreme cases can be a very large increase in building costs for a given capacity.

Human concerns can extend to social issues such as the psychological space given to a reader, degrees of privacy and the importance given to office size either to accommodate group meetings or the importance of senior administrators, as local custom dictates. Even religious doctrine may play a role, such as a circumstance where separate facilities must be provided for men and women. Building costs can rise as the result.

3. A third influence is the collection, and specifically its size, age, variety of formats, and the nature of access.

For libraries with a collection that has been growing for a long time, concerns about conservation and preservation of collections may significantly influence furniture details and environmental specifications for the building. Size of collection is an influence not merely for the quantity of material in the inventory but also for other space that may come as a result — for example, rooms for sorting materials before reshelving, special shelving for portfolio and folio volumes, larger public card catalog quarters, a larger reference collection in some cases with more seating as a result, and larger staff quarters for those who must tend the collection. Additional collection formats can result in more space, with reading machines devoted to microtexts, video tapes, motion picture films, slides, and data accessed by computer terminals. And most importantly, the nature of access is an influence, since a closed stack *may under some local laws be designed much more compactly* and economically than if the collection is shelved in a stack open to student access.

4. A fourth issue is the extent to which information technology is utilized or will be in the course of the next ten or twenty years.

This technology is changing at such a rate, in the developed countries at least, that a final section of this paper will be devoted to it. However, at this point, there will be one example of what information technology may do to influence the size and therefore the cost of future library buildings. In some parts of the world there are curriculum requirements that use microcomputers. As an example, in the U.S.A. there are many colleges and universities which have clusters of microcomputers, personal computers or workstations on which class assignments must be completed. These "clusters," as they are called, tend to represent a new and supplemental space requirement in terms of the traditional library.

To give an example of the effect on seating, the following table indicates the percentage of library seating devoted to microcomputers in university libraries in the U.S.A. [Ready as handouts for IFLA — Paris.] It is readily apparent that less than two percent is typical, yet there are a number of instances of four and five percent, all or nearly all of which is seating converted to microcomputer stations from book reading/study stations or lounge seating. As much as eight and nine percent (with all or none having been converted) is very rare, but instances do exist.

While some of the furnishings and seating have been located in library space converted from book reading positions, it is a fact that this is a new demand on library space originally planned without such needs even being foreseen. Any library reading rooms converted to microcomputer clusters need to be done with care. The microcomputer workstation may not take much more space than a typical reading space, but there may be printing stations and an instructor's station and quarters for a consultant. And, if traditional forms of information storage technologies (like books) are also used at the cluster workstation, greater space per student will be required. Clearly, if teachers give library computer cluster assignments, in lieu of course work to be done in one's residence or in lieu of a laboratory assignment, these impose a net increase in library traffic. Indeed, the computer cluster often is the most heavily used seating in the library.

On the other hand, if the computer assignment is in lieu of some other required book reading, it will not result in an increase. If the number of students does not increase and the assignments increase on library located microcomputers, the librarian will need to study whether the computer workstation needs constitute an increase in the library. And finally, if one can project whether there will be economical portable lap-top computers or if there will be greater reliance on high-capacity multi-function workstations in dormitories with high speed network connections, then in fact the influence on future library space requirements may be minimal. It is early yet to make predictions with clarity.

E. A SPECIAL COMMENT ON THE FUTURE WITH RESPECT TO INFORMATION TECHNOLOGY

Among all of the unknowns and imponderables that influence future capital funding of library buildings, a topic that is of special interest to university officers as well as to the librarian is that of the effect of information technology. Microfilms have resulted in special shelving arrangements and require generous space for reading machines. Slides and video tapes have had a somewhat similar influence. Telefacsimile will have almost no influence except as it will enable a library to expand the functional breadth of its collections by calling on rapid reciprocal document delivery, more so than was the case under normal interlibrary loan delivery conditions.

Yet when one considers CD-ROM databases and access to online systems through remote or local computer terminals the possibility of a library building requiring much more or much less space seems more mysterious than is the case for microfilm and the other older technologies. This section therefore will provide comment on the possible influence of such technology on five parts of a university library building.

1. Staff size

Staff size will increase unless all system development and maintenance service is by off-site contract. Where there are major in-house computer systems, there will usually be an increase in the number of staff for system support, including staff for machine-readable data files, and perhaps additional staff needed for bibliographic instruction and assistance and for increases in interlibrary traffic. These staff quarters will be technologically complex and thus expensive.

2. Office work spaces

Office work spaces of all library staff will be slightly larger due to the need to have readily at hand a local personal computer, a printer, manuals, perhaps a telefacsimile machine and a file for floppy disks. Paper files will remain for sometime as well ; file cabinets may continue to grow at the same rate as they have.

3. Staff service desks

Staff service desks are probably going to be slightly larger due to the need to accommodate one or more microcomputer workstations, a slave monitor in some cases for viewing by the patron, and a local printer and fax. But the card catalog area may save a good deal of space when all of the library records are online — perhaps saving as much as three-quarters of the space required by the card catalog for the collection.

4. Collection shelving

Collection shelving is more difficult to predict. In this century it seems probable that material in non-book formats are additions rather than replacements for books. On the other hand, reference works, technical reports and even some journals will be in both paper and online format, and some are already only in the latter form. Yet, as publishing world-wide continues to grow, most university libraries will continue to grow very much at the same rate they have been recently in terms in their paper-based book and journal collections, at least for the next twenty years.

5. Student work desks, tables and carrels

They will typically increase some in size and may or may not increase in number. Most of these study locations will need to be of the size of an audio-visual or microtext carrel. A key question is whether students will continue to be urged or required to buy a personal computer and, if so, whether a portable will have enough capacity. With 256 megabytes of optical storage and hundreds of megabytes magnetic storage, four grey levels of display with 1120 x 832 dot resolution, the NeXT computer designed specifically for college assignments is expensive and not portable. Current and near-term future capabilities of portable microcomputers will rival their desk-top cousins with the capacity to support high resolution flat-panel color screens, large amounts of main memory, fixed disk capacities of several tens of megabytes, and high-speed connections to networks. If software catches up with the capacity of such portables, students may carry them even more than they once did the portable typewriter. Thus, portable computers may not in themselves alter space needs. Shared equipment for access to CD-ROM and videodisc will increase library space until the data can be networked, with the database maintained in a file server. This development is also already beginning to appear.

The number of study places will *perhaps* be reduced because of more remote access. Yet that is not certain, and it has not yet been seen in any degree in libraries of campuses with heavy use of information technology. A survey of nearly one hundred major university libraries in the U.S.A. reveals that none have so far perceived any reduction in library traffic and seating requirements because of remote access to some computer data.

At the same time, microcomputer clusters in libraries have become common in the U.S.A. even when the majority of students own a personal computer for use in their campus residence. Student dormitories are nortorious for an atmosphere more social than studious. In most universities the residence halls are some blocks from academic buildings. Thus the library is likely to remain the principal study locus during the day as well as evening. And a library building requirement for information technology will be the need to provide physical separation between those people using traditional printed materials and those using keyboards, printers, disk drives, and other things that whirr, thump and whine.

Overall, on the experience of today it seems quite evident that a library which anticipates a heavy use of information technology will require somewhat more space, rather than less space, in comparison with the traditional library. Furthermore, the electrical and signal transmission requirements in the building will increase very substantially, increasing the cost of the library building.

In June 1967, a group of experts from various fields were brought together by the Educational Facilities Laboratories (EFL) in New York City to explore the influence of technology on library buildings, and particularly the changes brought about by computer technology, microform technology, communications technology, and the relationship of human beings to the possible changes ahead. The meeting was called because of the expectation that, at some point in time and to some degree, there will be the ability to access information very widely from one's home or office — from "as fruitful a place for learning as the best public, academic, or research libraries in major centers. But to what extent this will ever be a reality is the big question. Almost as important as the question of when."

It is impressive to see this advice of over twenty years ago contained in the EFL pamphlet *The Impact of Technology on the Library Building*. Most of us would even today agree wholeheartedly with that EFL report which concluded that technological developments in the foreseeable future "will not alter radically the way libraries are used. In planning library buildings today, we should start with the library as the institution we now know it to be. Any departures in the future should be made from this firm base. To be sure, technology will modify library buildings. The changes will involve trade-offs in space and demands for additional space rather than less." The experience at Stanford University and indeed at dozens of well regarded colleges and universities in North America, most of them with heavy investments in information technology, would confirm this view.

F. CONCLUSION

A renewed emphasis on flexibility, a greatly increased load on electrical and communications systems, and a continued strong rate of growth in the book and journal collections — these are the major points for planners in the years ahead. That advice will not, unfortunately, make it any easier to obtain funds for library building construction. It may in fact make it more difficult.

Additions to library buildings will continue to be required. Physical preparation for floor areas to accommodate collection shelving in a highly compact style and designed to permit access by readers should often be planned for any construction or renovation, despite the fact that compact shelving is an expensive option. Renovations, often extensive renovations to meet a increasingly technological age, will be required. Some of these renovations will be very costly because of the need to make major improvements in electrical and mechanical systems. The cost of changing from one generation to another of computer technology may complicate financing and require more reliance on the annual operating budget. Amortizing computer equipment would seem prudent, including provision of replacement funds in the annual budget so that an account accumulates funds that will cover costs of moving from one generation to another. Universities generally find it difficult to accommodate such huge conversion costs, but, here again, the local practice of governments or university practice will need to guide the approach to funding.

For technical reasons described above, the future library building may be ten to twenty percent more expensive than a traditional library. The costs per square meter may be closer to the cost of elaborate audio-visual facilities or even many laboratories, though not equal to costs of the most sophisticated wet scientific laboratories.

Whereas the collections in the library are of greatest importance and, together with a quality staff providing quality service to faculty and students, these collections are the heart and soul of any university library, it is essential to assure that the collections are cared for and that students and faculty have library quarters in which to pursue their scholarship. It is for that reason that a suitable accommodation to house these collections and functions is required, no matter how difficult the financial problem. Fortunately history shows us that civilizations appreciate education and, within higher education, the library is a crucial instrument in the pursuit of teaching and learning. Thus we can be optimistic that funds will be available to provide for the library building needs of the future.

NOTES

1. A worthy paper which concerns broad social and economic influences is "Realities — Funding of Library Construction" by Kenneth E. Beasley, then Vice President for Academic Affairs, University of California, a paper published in *Running Out of Space — What are the Alternatives* ?, edited by Gloria Novak, Chicago, American Library Association, 1978, pages 121-132.
2. This data was compiled from over 280 useful responses to a survey sent to the larger universities in most countries of the world. (The response rate was over fifty percent). One must recognize that this is only a fraction of universities, and the picture summarized from a few university libraries in any one country may not be an accurate picture of the experience even of that one country.
3. *See also* an article by the experienced university librarian and consultant, Margaret Beckman, entitled "Library Buildings in the Network Environment" *Journal of Academic Librarianship*, volume 9, #5, pages 281-284, which provides wise advice on the impact of computer technology and telecommunications on various functional areas and construction requirements in library buildings.

89-BUILD-2-E

A flexible learning environment : library resource centres for the twenty-first century

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ABSTRACT

This paper discusses the major building programme undertaken by New South Wales TAFE Library Services (Australia) which results in 4-5 library resource centres being constructed each year. A summary of identifiable costs is presented for the most recently built libraries together with strategies that have been adopted to reduce costs without decreasing the value or quality of services. Strategies that are discussed include : the development of guidelines for the planning and design of library resource centres ; post occupancy evaluation ; networking and resource — sharing ; the collecting and publicising of usage statistics and management information and the development of supplementary funding sources from industry.

TAFE Library Services is a library network in New South Wales, Australia that supports the skills based training and vocational education programmes provided throughout the state by the Department of Technical and Further Education (TAFE). There are currently 102 Colleges in New South Wales, 82 of which provide staffed libraries that provide services to the clients of TAFE Colleges : teachers, students, administrators and the community, including local business and industry (Schmidmaier, p. 1, 1988). The courses provided by TAFE Colleges throughout New South Wales focus on skills based, vocational learning that directly supports those skills required in industry. In 1988 440,000 students were enrolled in TAFE courses in New South Wales.

While the College Libraries are geographically spread across the State, a central co-ordinating unit is responsible for developing policies and strategy as well as detailed planning and support for the library network as a whole. Technical Services for the library network is also provided by a central Branch that orders, acquires, catalogues, processes and distributes resource materials for network libraries. To assist in the management of the network, country areas are divided into regions, with a regional headquarter library taking a leading and co-ordinating role for the remaining 6-8 libraries within that region.

TAFE Library Services is involved in a major, ongoing building programme which in recent years has resulted in 4-5 new library resource centres being constructed per year. This trend will continue at least until 1991. To provide effective and relevant library services, the concept of a purpose-built library has been developed. A purpose-built library is a special purpose building which contains flexible, dedicated functional areas or components to support the teaching/learning programs in the College and to provide access to and control of resource materials.

The building program is an expensive exercise. A summary of the expenses for more recent years is provided in order to illustrate the size and variety of the program (see table below).

Library resource centres can be either part of an existing TAFE College that is being expanded or part of an entirely new College. College libraries vary in size according to the size or grade of the College. Identifiable costs per library include the

LIBRARY RESOURCE CENTRES
Capital and Establishment Costs

College 1987	Grade	Size (M^2)	Cap Cost ($A)	Furniture ($A)	Equipment ($A)	Est Grant New Lib ($A)
Port Macquarie	3	600	480,000	37,500	13,000	30,000
Taree	3	550	440,000	35,000	24,250	N/A
Werrington	3	580	464,000	40,000	20,000	30,000
1988						
Wollongong	0	2,800	2,240,000	285,000	74,500	N/A
Miller	2	1,000	800,000	125,000	39,500	N/A
Wyong	3	600	480,000	80,000	41,000	60,000
Orange	2	950	760,000	125,000	65,000	N/A
Crows Nest	3	1,000	800,000	125,000	89,000	33,000
1989/90						
Macquarie Fields	3	500	425,000	89,000	65,500	37,000
Lidcombe	1	1,600	1,360,000	189,000	107,000	75,000
Tamworth	2	950	807,500	156,000	111,5000	N/A

capital or construction costs including the basic fit out, additional furniture and equipment and an establishment grant for new Colleges to set up a resource material collection. Network services such as staffing, the acquisition and processing of materials, and online services, are handled centrally. Funding for the TAFE Library Services library resource centre program is provided by the Commonwealth (national) Government of Australia. Competition for these funds if fierce. We are faced with the continual dilemma of containing and, if possible, reducing costs while at the same time building libraries that "work", that is, well-used, attractive environments which provide value-added library and information services. To support this juggling process of reducing costs against building quality libraries, a variety of strategies have been actively pursued. They include the following:

1. Guidelines for the planning of library resource centres.

A set of TAFE Library Services guidelines has been developed to assist in the planning of library resource centres that can vary in size from 120 m^2 to 2000 m^2. TAFE Colleges vary considerably in size, depending on the population of the surrounding community and the ongoing demand for vocational courses. Some colleges may begin on a small scale yet rapidly develop into large grade 1 Colleges which support high student numbers.

As a result there is no fixed formula for planning or designing the layout or size of a library resource centre. The size and design is negotiated individually for each library and is dependent on a variety of factors including available funding, the type of college and its potential growth, student population, the variety of courses being offered and design considerations as interpreted by the architect.

The critical factor, however, is the funding that is available for the project as a whole and the degree of funding that is allocated to the library as part of the overall building programme. To assist in this negotiation process guidelines were formulated in 1984 (Schmidmaier) and revised in 1988 (Rowsell) in order to identify the needs and associated requirements of library resource centres for all varieties of TAFE Colleges. The guidelines reinforce the concept of providing functional areas for special purposes which can be incorporated into the specific educational programs of the College. The following basic, functional components should be incorporated into the design of any library resource centre regardless of size:

Functional library areas which support access to and control of information and resource materials

- Open access resource materials storage (including reference materials)
- Catalogues and indexes
- Reference and reader assistance
- Circulation and security
- Display and browsing
- A/V equipment store
- Stack (regional library or technical services centre)
- Staff workroom
- Office
- Staff amenities room

Direct educational support areas which would otherwise be needed elsewhere in the college.

- Individual study seating (tables and study carrels)
- A/V carrels
- A/V seminar room/s
- Group study room/s
- Microcomputers for student out-of-class access
- Photocopying area
- Instructional Design Centre (if available at College)
- Individual Learning Centre (if available at College)

The guidelines address each functional area in detail with recommendations for standard size allocations that have been determined after examining Australian and international guidelines for the design of academic and tertiary libraries.

The important function of the guidelines is to ensure that the basic purpose and services of the library are taken into account in the planning process, particularly when it may be expedient for administrators to trim excess dollars from an already over-committed building budget.

2. Guidelines for the design of critical services areas and key design features of the library.

Once the size and general design of a library resource centre has been negotiated the next stage in the broad planning process is to discuss the more detailed aspects of design with the architect and interior designer. To assist in this cost and design exercise, a further set of guidelines have been established which again cater for varying sizes and types of libraries. Special attention is paid to the design requirements associated with the advanced technology being made available in the network, for example, online circulation, online public access catalogs, CD-CAT (the catalog on compact disk) and external database searching. Occupational health and safety aspects are a priority, within the aesthetic framework determined by the architect and designer. Guidelines in this category include:

- The circulation desk
- Online public access catalogue tables
- Ergonomic workstations for screen based equipment in general
- The information/reference desk
- Practical applications for Australian health and safety standards for lighting and task movement as they relate to the library environment
- Electronic security system
- The use of microcomputing facilities in College libraries
- Colour and finishes including carpet, upholstery, shelving, work surfaces, window finishes and coverings
- Library sign posting
- Equipment such as photocopiers, dump trolleys, coin change machines
- Library relocation, where an existing library is moved into a new library resource centre

The detailed design guidelines are aimed at producing fit-outs and equipment which are practical, which look good and above all that work. For example, the library circulation desk is designed to accommodate all the functions of a desk that issues and returns library materials whether on or off line including storage requirements and the appropriate use of lighting and workspace design to accommodate all task movements. No unique formula can be provided, as different layouts require a flexible approach particularly regarding the location of the desk and its relationship to the entrance.

The guidelines help in achieving "a welcoming environment that creates a positive response to the library" (Lawson, 1988) which is conducive to resource based learning for students and the college generally. They also result in attractive, quality inclusions that suit the overall philosophy of purpose-built libraries.

3. Post-occupancy evaluation

Two library resource centres have been evaluated on performance and effectiveness of design after 12 months of occupation. The method used for this evaluation is called "post occupancy evaluation" which aims to measure the way in which the building has responded to accommodation and the way occupants have responded to the building. The evaluation involves an examination of the library resource centre through interviews, surveys, checklists, workshops, and walk-throughs. The opinions of user groups including students, teachers, library staff, cleaning and maintenance staff are sought as well as the planners, architects and designers. The library's compliance with established guidelines for purpose-built libraries in NSW TAFE is also assessed from both an architectural and a functional perspective.

The major findings of the recent evaluations indicate that users of the library resource centres are highly satisfied with their overall performance. According to Braw (p.ii, 1988) "the buildings are comfortable, accessible and safe, close to most College amenities and easy to move around in". The positive response from users to the purpose-built library is echoed by Menzies and Lovelace (p.v, 1988) who state "where TAFE has purpose-built libraries with relevant material, the students' library use can be optimal". The evaluation process provides valuable feed back that can be used in future design planning.

4. Networking

TAFE Library Services operates as a network. It is also a member of a larger, co-operative library network called CLANN. All CLANN members share a machine-readable database and a union catalog, allow reciprocal borrowing by users of member libraries and provide free inter-library loans to network members (Schmidmaier, 1988).

Through membership of the CLANN network the quality of library services available to students and staff has been improved by the progressive introduction of online catalogs and online circulation systems (Woods, 1988). As a result more than half the libraries in the TAFE library network offer online services and all libraries offer CD-ROM services including the CLANN CD-CAT (Woods, 1989). The network benefits of a shared database, resource sharing, reciprocal borrowing and online services mean that standard policies, systems and services are available at reduced costs. For example, the average transaction cost of cataloging a book in TAFE Library Services has decreased from $ A 2.33 in 1985 to $ A 1.94 in 1988. The average transaction cost to convert older material into the shared database is even cheaper at an average cost of $ A 1.70 per volume. Even when staff time and overheads are included, the average cost of cataloging a book in TAFE Library Services is $ A10.00 per volume (1988).

Resource sharing through networking has achieved reduced unit costs in all areas of library service not just in cataloging. It has also given the added bonus of providing access to the best and latest technology which would not be as affordable or manageable in a non-network environment. The effect on the design of the library resource centre is to provide easy, flexible access to a variety of online information resources in one convenient location.

5. Usage statistics

Statistics for the TAFE library network are progressively collected for all College libraries both manually and via the online systems. They are centrally documented twice a year. The statistics reflect usage patterns in terms of loans as well as services eg use of microcomputers, seminar rooms, individual study facilities, external database searches and usage patterns with other library network members.

A variety of management reports are produced so that a clearer picture of the client base can be obtained. This is particularly relevant for older Colleges where an existing library is replaced by a purpose-built library. The "before" and "after" usage patterns and levels can then be compared in order to measure the impact of the new facility.

The statistics and management information are used to publicise successful services as well as to support requests for funding, staffing and building/refurbishment programs where it is essential to provide evidence that the high expenditure of funds and time taken to produce effective designs is producing a well-used product.

6. Fee-for-service research

Government policy in Australia particularly in the field of education, is now causing a change in attitude to funding for public service organizations. Where possible government funds supplied to an organisation must be supplemented by developing services that can be sold or sponsored by industry on a cost recovery basis.

TAFE Library Services is currently undertaking research to identify a unique market niche for services which can be tailored to targetted client groups on a fee basis. The preliminary targets will be online information services for the food and hospitality industry as well as the plastics and chemical industry. Library resource centres will be used to provide these services to local industry and it will be interesting to determine whether or not this will have any impact on current design requirements.

Conclusion

The paper has provided some insights into the strategies adopted in TAFE Library Services to provide value added College based library resource centres while containing and preferably reducing unit costs. The strategies emphasize the need to develop a flexible, attractive and technologically advanced environment to foster resource based learning in libraries which are purpose-built.

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34-STAT-1-F

Statistiques et évaluation dans les bibliothèques universitaires françaises.

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L'initiative en matière de collecte et de publication de statistiques relatives aux bibliothèques universitaires est venue en France, non pas de groupements de bibliothèques ou d'associations professionnelles, comme dans d'autres pays, mais du Ministère de l'Education Nationale, dans le cadre de ses responsabilités administratives à l'égard des bibliothèques. Les premières données publiées remontent au début des années 1950. C'est la décision prise en 1952 de publier ces statistiques qui a permis de commencer à unifier les méthodes de collecte des données et de progresser dans ce domaine. Ainsi disposons-nous des résultats des années 1953-1954 à 1959-1960, qui ont paru dans le *Bulletin d'information de la Direction des Bibliothèques de France*, puis dans le *Bulletin des Bibliothèques de France*. Tableaux et commentaires s'appuyaient sur quelques données essentielles relatives au service public (usagers, fréquentation, nombre de places, communications et prêts) et aux services intérieurs (accroissement des collections).

Les années 60 ont marqué un bond dans l'essor des universités. Ont été créés de nombreux centres universitaires, qui se sont transformés ensuite en universités de plein exercice, avec pour conséquence la construction de nouvelles bibliothèques. Nous ne disposons pas de statistiques publiées pour ces années d'essor rapide, de 1960 à 1973. Cette période s'est caractérisée cependant par la participation de la France à la normalisation internationale des statistiques de bibliothèques.

Ce travail de normalisation a porté ses fruits dans le cadre français en 1976, année de création de l'Enquête statistique générale auprès des bibliothèques universitaires (ESGBU), dont le premier bilan porta sur l'année 1974. L'ESGBU est une enquête statistique annuelle, en deux questionnaires. Le fascicule *Sections* concerne chaque point de desserte et dresse le bilan du service public, établit l'inventaire des moyens (personnels, locaux, matériels, collections), mesure l'accroissement des collections et les dépenses documentaires correspondantes. Le fascicule *Ensemble de la bibliothèque* concerne chaque unité administrative et présente le bilan financier de l'exercice budgétaire : les recettes distinguées selon la source de financement et les dépenses ventilées par nature (locaux, personnel, acquisitions, reliure, fonctionnement courant). Les résultats de l'ESGBU ont été publiés dans le *Bulletin des bibliothèques de France* pour les années 1974 à 1984, puis ont fait l'objet depuis 1985 d'une diffusion sous forme de fascicule par la Direction des Bibliothèques, des Musées et de l'Information Scientifique et technique (DBMIST), dépendant du Ministère de l'Education Nationale. L'ESGBU, qui est le fruit de la réflexion de l'ensemble de la profession, a connu des perfectionnements jusqu'à atteindre sa forme la plus complète en 1982.

Parallèlement à l'ESGBU, a été introduite en 1975 une enquête annuelle sur le prêt entre bibliothèques, dont les

résultats ont été publiés régulièrement. Enfin, une enquête statistique sur la recherche documentaire informatisée a été créée en 1985, mais elle n'a pas donné lieu jusqu'à maintenant à une publication officielle.

L'année 1982 est une période-charnière pour les statistiques des bibliothèques universitaires françaises. Un événement marquant en fut l'organisation du colloque de l'AUPELF à Nice en décembre 1982 sur *L'Evaluation des bibliothèques universitaires*. Y ont participé des représentants de 30 bibliothèques universitaires françaises, et ces journées ont joué un rôle d'incitation au développement des études sur le fonctionnement des services. Selon une enquête réalisée par la DBMIST en 1984, une dizaine de bibliothèques se sont ensuite intéressées à des thèmes tels que l'utilisation des collections de périodiques et de manuels, les causes de non-satisfaction des usagers, les délais de satisfaction des demandes de prêt entre bibliothèques, le fonctionnement des services de recherche documentaire informatisée ou d'enseignement assisté par ordinateur, ou le prix de revient des photocopies. Cependant, selon le rapport de la DBMIST, ces études ne répondaient pas pleinement à la démarche de l'évaluation car il y manquait une dimension à la fois globale et dynamique, faute de définition d'objectifs auxquels soient comparés les résultats obtenus. Seule une bibliothèque, celle de l'Université de Technologie de Compiègne, disposait alors d'un tableau de bord. Restait pour l'ensemble des bibliothèques à faire le chemin du constat de l'existant à l'évaluation.

L'enquête statistique nationale ne permettait pas une démarche dynamique d'évaluation. Certes, les statistiques publiées au niveau national sont utiles à l'ensemble des bibliothèques, à condition que les données en aient été collectées selon des méthodes uniformes ; elles permettent à chacune de se situer par rapport à des établissements de taille comparable. Elles sont cependant, de par leur caractère général, muettes sur bien des aspects et ne remplacent pas un travail d'évaluation de chaque bibliothèque au plan local. En effet, seul ce travail, qui mérite d'être partie intégrante de chaque activité, peut dire si la bibliothèque remplit ses fonctions de façon satisfaisante.

Cette remise en question coïncidait avec l'ouverture de services nouveaux, et le développement de nouvelles technologies, qui ont posé aux bibliothèques des problèmes économiques et les ont rendues conscientes des nécessités d'une évaluation des coûts et des performances. Certains services (le prêt entre bibliothèques, la recherche documentaire informatisée) sont devenus payants pour l'usager, ce qui a amené à réfléchir à la politique tarifaire, et en contrepartie à s'interroger sur les taux de satisfaction des usagers et sur l'adéquation à la demande du public. Le développement de l'informatisation du catalogage a joué un rôle non négligeable dans cette prise de conscience : la charge en investissement et en fonctionnement qu'elle implique rend les choix en la matière lourds de conséquences, et contraint à une évaluation comparée des coûts et des résultats attendus ou obtenus.

Cette modernisation des bibliothèques s'opérait en même temps qu'une réflexion sur l'organisation de la documentation au sein d'universités disposant d'une autonomie accrue, réflexion qui a conduit à une transformation de la bibliothèque universitaire en **service commun de la documentation universitaire**. Le but est de parvenir à une intégration de la bibliothèque au sein de l'université et de constituer un système documentaire unique et cohérent, fédérant toutes les bibliothèques de l'université dans un même service. Certes, les différentes bibliothèques peuvent participer à des degrés divers à ce service selon qu'elles y sont intégrées ou associées, mais les instances responsables (président, conseils, directeur du service de documentation universitaire) sont amenés à élaborer une politique documentaire commune à l'ensemble de l'université et à fixer des objectifs de développement en fonction des priorités retenues.

En même temps que cette évolution statutaire, se développait une évolution dans la politique d'allocation de crédits au niveau national, avec le lancement de contrats quadriennaux de recherche ou de contrats pour la rénovation des enseignements de premier cycle universitaire. Ces contrats comportent des volets documentaires, et la répartition des moyens aux bibliothèques universitaires ne se fait donc plus uniquement selon des critères normés (lecteurs potentiels, disciplines), même si cette enveloppe normée représente encore de loin la part la plus importante. Cette démarche contractuelle, complétée par la mise au point de contrats de modernisation des bibliothèques, suppose la définition d'objectifs documentaires ou relatifs au fonctionnement et à l'organisation des services, et l'élaboration d'outils de contrôle des résultats. Ainsi, ce sont ces volets documentaires contractuels qui ont entraîné la mise en place de **plans de développement des collections**, selon la méthode CONSPECTUS.

Tout cet ensemble amenait à considérer que les bibliothèques ne devaient pas simplement être jugées et financées selon des critères de potentialités, mais selon les objectifs définis et les résultats obtenus. Le bilan statistique annuel établi au niveau national que représente l'ESGBU ne pouvait répondre à l'ensemble de ces questions. Il fallait en effet un outil basé sur des indicateurs récents et pertinents, les résultats devant être mesurés rapidement, avec la marge d'incertitude corrélative à cette célérité, de façon à pouvoir infléchir à temps le cours de l'action. Ce ne pouvait être l'objet de l'enquête statistique annuelle, qui vise à l'exactitude d'un bilan a posteriori, et montre son utilité pour la consolidation des données sur la base de vérifications plus précises.

C'est pourquoi la DBMIST a constitué à l'automne 1984 un groupe de réflexion, chargé de l'élaboration d'un **tableau de bord** de gestion, réunissant des directeurs de bibliothèques universitaires et présidé par Gérard Thirion, Inspecteur général des bibliothèques. Un projet a été diffusé à l'ensemble des BU au cours de l'année 1986. Ce projet fut discuté et amélioré à la suite de larges réunions d'information auxquelles ont participé plus de 200 professionnels. Il fait l'objet depuis 1987 d'un test dans 8 bibliothèques : Amiens, Montpellier, Mulhouse, Nancy, Cujas, Paris VI, Paris X et Paris XI.

Le but est de constituer un système de clignotants, permettant de vérifier l'évolution de la bibliothèque et la direction dans laquelle elle poursuit son action. A l'aide de cet instrument, on peut comparer les objectifs fixés, les moyens mis en œuvre et les résultats obtenus. Le tableau de bord développe une analyse des données en termes d'écart dans le temps (comparaison de la bibliothèque à elle-même) ou d'écart à un comportement moyen (comparaison entre des bibliothèques semblables). Cette méthode, loin de viser à l'homogénéité des comportements, présente surtout de l'intérêt en ce qu'elle met à jour les situations particulières.

Le tableau de bord ne remplace donc pas l'enquête statistique nationale, mais est un instrument de pilotage au plan local ; il ne permet évidemment pas un pilotage automatique, mais il constitue un outil de dialogue et d'aide à la décision pour les divers intervenants de la documentation universitaire sur la base d'informations compréhensibles par tous, fiables et récentes. Il aide ainsi les instances universitaires à mieux s'adapter à la demande, et à optimiser les ressources disponibles. A ce titre, il est complémentaire de l'élaboration de la politique documentaire de l'université ; il éclaire la formulation des choix de développement, qu'il s'agisse de déterminer les priorités entre disciplines, de décider de l'organisation des services ou de choisir des équipements adaptés aux besoins de la collectivité ou au volume des activités.

Le tableau de bord, servant à l'élaboration de ces décisions, doit également avoir un effet en retour grâce à un contrôle régulier de la réalisation des objectifs ; c'est ainsi qu'il rend possible de corriger ou d'infléchir les actions en cours. Il est par là un outil indispensable pour une gestion autonome des universités en matière documentaire.

Le tableau de bord s'appuie donc sur un système d'indicateurs. Ainsi que le rappelle Daniel Renoult, directeur de la Bibliothèque universitaire Paris X-Nanterre, "l'indicateur peut être défini comme la représentation chiffrée d'une variable significative pour la gestion. Représentation chiffrée signifie exactitude, constance, comparabilité dans le temps, équité. En somme, un indicateur devrait dans l'idéal être indiscutable ou au moins dépourvu de toute ambiguïté." De ce fait, les indicateurs sont exprimés dans la plupart des cas sous forme de valeurs relatives, plutôt que de valeurs absolues, afin d'avoir un sens par rapport à la situation de l'organisme à un moment donné. Ce tableau de bord, s'il repose sur la collecte régulière de données brutes, est donc distinct dans sa démarche d'une simple enquête statistique.

Les indicateurs du tableau de bord sont en effet des interprétations des données statistiques. Certaines données recueillies sont exprimées ensuite sous forme de ratios, tel le taux de pénétration du public, le degré de libre accès, le taux de satisfaction des demandes de prêt entre bibliothèques, le pourcentage d'emprunt des nouvelles acquisitions ou le taux de renouvellement des collections.

D'autres données aboutissent à une synthèse sous forme d'indices, établis par comparaison entre les sections d'une même bibliothèque ou bien d'une même discipline : il s'agit des indices d'activité et des indices d'encadrement et de charge de travail par catégorie de personnel. A ce sujet, les tests en cours n'ont pu confirmer l'hypothèse du projet initial : il visait en effet à exprimer la mesure de l'activité ou de la charge de travail en un seul indice synthétique, qui serait fabriqué par pondération d'indices propres à chaque secteur d'activités (le prêt, les acquisitions, la recherche documentaire, la formation des usagers, etc...). Si l'on peut disposer d'indices propres à chaque activité, les bibliothèques-test n'ont pu trouver une formule de pondération incontestable et applicable à toutes. Enfin, la mesure des activités, si elle peut être quantifiée, ne peut trouver toute son expression dans un nombre unique. Cet indice unique, en effet, masquerait la singularité du comportement de chaque secteur, et ne traduirait pas de façon exhaustive toute une série d'activites difficilement quantifiables.

Enfin, d'autres données sont exprimées sous forme de moyenne, tels que les indicateurs de délai, relatifs au fonctionnement des services d'acquisition et de traitement des documents, ou au prêt entre bibliothèques.

Les principaux indicateurs du tableau de bord, présentés dans les documents joints, sont relatifs à l'évolution du public et à l'encadrement en personnel, à la mesure des activités et de la charge de travail, à l'évolution des ressources documentaires et au coût des services.

L'un des aspects les plus novateurs de ce tableau de bord pour les bibliothèques universitaires françaises est l'analyse fonctionnelle des coûts de gestion. Les dépenses y sont en effet étudiées par fonction ou par service : acquisition, traitement, conservation, communication, référence, recherche documentaire informatisée, prêt entre bibliothèques, réseaux, formation, administration, maintenance des locaux. Si de telles méthodes d'analyse fonctionnelle sont bien connues au niveau international et ont déjà fait l'objet d'applications, les études dans ce sens dans les bibliothèques universitaires françaises sont rares jusqu'à maintenant. On peut citer à titre d'exemple l'analyse des tâches menée par Gérard Thirion à Nancy en 1976.

L'analyse fonctionnelle des coûts de gestion vise à calculer le coût global de chaque fonction, à partir de l'étude des différents éléments de dépense rattachés à chacune.

Elle suppose en premier lieu que l'on connaisse la répartition des effectifs de chaque catégorie de personnel par fonction, les dépenses en personnel imputables à chaque fonction pouvant ensuite être chiffrées sur la base d'un coût moyen annuel par catégorie. Cette ventilation des effectifs par fonction n'est pas une évidence en France, où les bibliothèques universitaires sont organisées en sections disciplinaires et où les personnels accomplissent souvent les tâches les plus diverses. Une telle représentation par fonctions nécessite donc la mise en place préalable d'un organigramme (sans préjuger du type d'organisation réelle de la bibliothèque : par nature de documents, par fonctions, par discipline ou par niveau de lecteur). Cette approche repose donc sur la définition des responsabilités de chacun au sein de la bibliothèque : elle joue ainsi un rôle dynamique, car elle va de pair avec la responsabilisation des personnels à la gestion de l'établissement.

La répartition par fonctions des coûts de gestion s'appuie d'autre part sur la notion d'environnement documentaire. Tout ce qui sert à une fonction documentaire (qu'il s'agisse d'équipements en matériels ou de prestations de services) entre dans le coût de cette fonction.

La mesure des services rendus pendant la même période permet de pousser plus à fond l'analyse des dépenses de chaque service par la détermination des coûts unitaires des services. Le rapport entre le coût global d'une fonction et le volume d'activité correspondant exprime ce coût unitaire : par exemple, le coût de traitement d'une acquisition, ou de catalogage d'un volume, le coût d'une transaction de prêt ou d'une minute d'interrogation. Ce coût est global, car il comprend les frais directs et indirects, que les dépenses soient supportées sur le budget de la bibliothèque ou non. La connaissance de ce coût global aide à fixer une politique tarifaire pour les services payants en délimitant ce qui est subventionné et ce qui est dû par l'usager.

Les données sur les coûts unitaires et la charge de travail contribuent à mesurer les effets de la modernisation des activités ou à en projeter les effets dans l'avenir, de façon à formuler une politique de développement adaptée aux besoins de la bibliothèque. Ce sont également des données indispensables pour opérer des choix d'implantation de matériels qui soient proportionnés à la taille de l'organisme et correspondent aux objectifs préalablement définis.

L'analyse des coûts de fonctionnement des services ne peut être complète sans poser la question de l'opportunité des dépenses. L'évaluation de l'activité n'est pas seulement quantitative, elle comprend un deuxième volet essentiel, relatif à la qualité du service. Celle-ci peut être appréciée objectivement (par l'étude du fonctionnement de la chaîne documentaire) ou bien subjectivement (par sondage auprès des usagers). Elle repose notamment sur l'analyse de l'adéquation des services et des fonds aux demandes des usagers et sur les enquêtes relatives aux délais et aux taux de satisfaction.

Le projet de tableau de bord ici présenté en est à l'étape du test. Parmi les conclusions provisoires de ce test, on peut relever tout d'abord que la réussite du tableau de bord dépend de l'existence d'un socle statistique solide. Il faut en effet disposer de séries significatives concernant les données à partir desquelles sont constitués les indicateurs, afin d'éviter des erreurs d'interprétation concernant des variations ou des à-coups.

Le deuxième point est que la mesure de l'activité, pour être complète et significative, doit s'appuyer sur des évaluations relativement difficiles à réaliser et nécessitant des sondages, si l'on ne veut pas se limiter à une vision traditionnelle de la bibliothèque. Ainsi, la consultation des collections doit être mesurée non seulement d'après les communications dûment enregistrées (prêt et communications sur bulletins), mais aussi en fonction d'une estimation de l'utilisation des fonds en accès libre. De même, l'évaluation de la fréquentation réelle de la bibliothèque ne peut se cantonner à la mesure des lecteurs inscrits pour le prêt ou la consultation, et il faut s'efforcer de chiffrer, par des sondages, les usagers réels de la bibliothèque. Ces deux exemples, parmi d'autres, ont une grande importance pour l'image de marque de la bibliothèque : en effet, les bibliothécaires n'ont pas pour but de mettre en place des modes de fonctionnement où tout soit forcément mesurable en sorte qu'ils puissent prouver à leurs instances de décision les progrès effectués, mais de favoriser l'usage le plus libre possible des collections par les lecteurs ; encore faut-il qu'ils mettent en place des dispositifs pertinents et le plus légers possible permettant d'évaluer les services rendus par des bibliothèques fonctionnant effectivement de façon moderne.

Le troisième point est qu'il faut veiller à ne pas introduire trop rapidement et de façon volontariste ce tableau de bord ; il vaut mieux avancer avec prudence, en assurant d'abord une large information et une formation des personnels aux statistiques et à l'évaluation, cette formation devant être renforcée dans les cursus de formation initiale de bibliothécaires.

Le dernier point et le plus important, est que préalablement à l'application du tableau de bord, il faut définir, en se basant sur le dialogue entre personnels et usagers et sur la délibération dans les instances de décision, les objectifs correspondant à la politique de développement de la bibliothèque. Une fois les objectifs fixés, on peut s'appuyer sur ce modèle pour y choisir des indicateurs qui soient adaptés aux besoins, et veiller ainsi à une introduction progressive de ce tableau de bord.

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PRINCIPAUX INDICATEURS DU TABLEAU DE BORD

01 EVOLUTION DU PUBLIC

TAUX DE PENETRATION DU PUBLIC PAR CATEGORIE DE LECTEURS
(RAPPEL TOTAL LECTEURS BU)

	(ANNEE :	(RAPPEL ANNEE PRECEDENTE)	(ECART / ANNEE PRECEDENTE)
LECTEURS INSCRITS PAR CATEGORIE X 100 LECTEURS POTENTIELS DE LA CATEGORIE			

02 ENCADREMENT EN PERSONNEL

TAUX D'ENCADREMENT DU PUBLIC DE LA SECTION PAR CATEGORIE DE PERSONNEL

NOMBRE DE LECTEURS INSCRITS / NOMBRE D'AGENTS			

INDICES D'ENCADREMENT DU PUBLIC DE LA SECTION PAR CATEGORIE DE PERSONNEL

TAUX D'ENCADREMENT DE LA SECTION / TAUX MOYEN DE LA BIBLIOTHEQUE			

ENCADREMENT DU PUBLIC DE NIVEAU RECHERCHE PAR CATEGORIE DE PERSONNEL

TOTAL LECTEURS RECHERCHE / NOMBRE D'AGENTS DE LA CATEGORIE			

03 ACTIVITE DE LA SECTION

INDICES D'ACTIVITE DE LA SECTION

LIBRE ACCES ESTIMATION DU NOMBRE DE DOCUMENTS CONSULTES			
PRET A DOMICILE NOMBRE DE DOCUMENTS PRETES / LECTEUR INSCRIT			
COMMUNICATION SUR PLACE NOMBRE DE DOCUMENTS COMMUNIQUES / LECTEUR INSCRIT			
RECHERCHE DOCUMENTAIRE INFORMATISEE NOMBRE DE RECHERCHES / LECTEUR DE NIVEAU RECHERCHE			
PRET ENTRE BIBLIOTHEQUES EMPRUNTEUR NOMBRE DE DEMANDES SATISFAITES / LECTEUR DE NIVEAU RECHERCHE			
FORMATION DES USAGERS DUREE MOYENNE DE FORMATION			

04 CHARGE DE TRAVAIL DE LA SECTION

INDICES DE CHARGE DE TRAVAIL DE LA SECTION PERSONNEL SCIENTIFIQUE

NOMBRE D'HEURES DE SERVICE PUBLIC / AGENT			
NOMBRE DE TITRES ACQUIS / AGENT			
NOMBRE DE TITRES CATALOGUES / AGENT			

INDICES DE CHARGE DE TRAVAIL DE LA SECTION PERSONNEL TECHNIQUE

NOMBRE D'HEURES DE SERVICE PUBLIC / AGENT			
NOMBRE DE TITRES ACQUIS / AGENT			
NOMBRE DE TITRES CATALOGUES / AGENT			

INDICES DE CHARGE DE TRAVAIL DE LA SECTION PERSONNEL DE SERVICE

NOMBRE D'HEURES DE SERVICE PUBLIC / AGENT			
NOMBRE DE VOLUMES EQUIPES / AGENT			
NOMBRE DE DOCUMENTS COMMUNIQUES + PRETES / AGENT			

05 QUALITE DU SERVICE RENDU

OUVERTURE DE LA BIBLIOTHEQUE

	(ANNEE :)	(RAPPEL ANNEE PRECEDENTE)	(ECART / ANNEE PRECEDENTE)
DUREE ANNUELLE D'OUVERTURE DE LA BIBLIOTHEQUE / NOMBRE DE JOURS			

CAPACITE D'ACCUEIL DES SALLES

PLACES ASSISES x 100 / NOMBRE DE LECTEURS INSCRITS			

DISPONIBILITE DES DOCUMENTS

ACQUISITIONS DE LIVRES : DELAI MOYEN DE COMMANDE			
DELAI MOYEN DE DISPONIBILITE DES LIVRES COMMANDES -LIVRES FRANCAIS			
-LIVRES ETRANGERS			
LIBRE ACCES NOMBRE DE VOLUMES EN LIBRE ACCES x 100 / NOMBRE TOTAL DE VOLUMES			
EXISTENCE D'UN SYSTEME DE PRET INFORMATISE	OUI - NON	OUI - NON	

PRET ENTRE BIBLIOTHEQUES

TAUX DE SATISFACTION DES DEMANDES EXPEDIEES			
DELAI MOYEN DE SATISFACTION (EN NOMBRE DE JOURS) POUR L'OBTENTION D'UN PRET D'ORIGINAL			
POUR L'OBTENTION D'UNE REPRODUCTION			

RECHERCHE DOCUMENTAIRE INFORMATISEE

TEMPS MOYEN D'UNE RECHERCHE			
APPRECIATION DU DEGRE DE SATISFACTION PAR L'USAGER			
PRIX MOYEN FACTURE A L'USAGER POUR 1 INTERROGATION			

SIGNALEMENT DU FONDS : LIVRES

% VOLUMES CATALOGUES PAR TRAITEMENT AUTOMATISE			

SIGNALEMENT DU FONDS : PUBLICATIONS EN SERIE

% TITRES LOCALISES AU CATALOGUE COLLECTIF NATIONAL /TOTAL TITRES			

ADEQUATION DE LA POLITIQUE D'ACQUISITION

% NOUVELLES ACQUISITIONS EMPRUNTEES AU MOINS 1 FOIS DANS L'ANNEE			

CONSERVATION DES COLLECTIONS

% DEPENSES DE CONSERVATION / DEPENSES D'ACQUISITION			
EXISTENCE D'UN SYSTEME ANTIVOL	OUI - NON	OUI - NON	

06 EVOLUTION DES RESSOURCES DOCUMENTAIRES

LIVRES

TAUX D'ACTUALITE DU FONDS : % FONDS RECENTS (MOINS DE 5 OU 10 ANS SELON LES DISCIPLINES) / TOTAL DU FONDS			
TAUX DE DISPARITION : % DES VOLS PAR RAPPORT AU FONDS RECENT			
TAUX DE RENOUVELLEMENT : % ACQUISITIONS / FONDS RECENT			
NOMBRE DE VOLUMES ACQUIS PAR LECTEUR INSCRIT			

PUBLICATIONS EN SERIE

% TITRES NOUVELLEMENT ACQUIS/TITRES VIVANTS			
% TITRES SUPPRIMES / TITRES VIVANTS			
NOMBRE D'ABONNEMENTS PRIS / LECTEUR INSCRIT			

07 COUTS DES SERVICES

VOIR TABLEAU SUIVANT

DEPENSES DE LA BIBLIOTHEQUE EXERCICE

	PERSONNEL (1)	ACQUISITION DE DOCUMENTS	ENVIRONNEMENT DOCUMENTAIRE	AUTRES DEPENSES	TOTAL	**POURCENTAGE**
ACQUISITION LIVRES + AUTRES DOCUMENTS				xxxxxxxxxxxxxxxxxxxxxxxxx		
ACQUISITION PUBLICATIONS EN SERIE				xxxxxxxxxxxxxxxxxxxxxxxxx		
TRAITEMENT LIVRES + AUTRES DOCUMENTS		xxxxxxxxxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxxxxxxxxx		
TRAITEMENT PUBLICATIONS EN SERIE		xxxxxxxxxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxxxxxxxxx		
CONSERVATION		xxxxxxxxxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxxxxxxxxx		
COMMUNICATION + PRET		xxxxxxxxxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxxxxxxxxx		
REFERENCE		xxxxxxxxxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxxxxxxxxx		
RECHERCHE DOCUMENTAIRE INFORMATISEE		xxxxxxxxxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxxxxxxxxx		
PRET ENTRE BIBLIOTHEQUES EMPRUNTEUR		xxxxxxxxxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxxxxxxxxx		
PRET ENTRE BIBLIOTHEQUES FOURNISSEUR		xxxxxxxxxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxxxxxxxxx		
RESEAUX		xxxxxxxxxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxxxxxxxxx		
FORMATION DONNEE		xxxxxxxxxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxxxxxxxxx		
FORMATION RECUE		xxxxxxxxxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxxxxxxxxx		
ANIMATION SCIENTIFIQUE ET TECHNIQUE		xxxxxxxxxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxxxxxxxxx		
ADMINISTRATION		xxxxxxxxxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxxxxxxxxxx			
MAINTENANCE DES LOCAUX		xxxxxxxxxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxxxxxxxxxx			
AUTRES		xxxxxxxxxxxxxxxxxxxxxxxxx				
TOTAL						
POURCENTAGE						

(1) DONT DEPENSES EN PERSONNEL SUR BUDGET PROPRE DE LA BIBLIOTHEQUE

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32-AVM-1-F

Le Point sur les technologies vidéo en bibliothèques

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RESUME

De nouvelles technologies sont disponibles pour les bibliothèques : les mémoires optiques (vidéodisque, CD.V, CD.ROM, D.O.N.), la numérisation, les vidéotransmissions, la robotisation. Comment peuvent-elles être utilisées pour la sauvegarde, la constitution, la communication des collections d'images fixes et animées ? A travers des exemples de bibliothèques françaises.

Il ne s'agit pas ici de résumer l'abondante littérature consacrée aux nouvelles technologies de l'information. Mais de faire le point sur les perspectives qu'ouvrent ces évolutions pour les collections audiovisuelles des bibliothèques.

D'une part en citant les facteurs principaux d'évolution pour le stockage et la transmission des images fixes et animées : les mémoires optiques, la numérisation, les vidéotransmissions et la robotisation.

D'autre part, en traçant, à travers des réalisations et des projets existants en France, les voies possibles pour la sauvegarde, la constitution et la communication des collections audiovisuelles des bibliothèques.

1. LES FACTEURS D'EVOLUTION

Rappelons que le contexte général est celui de l'évolution à la fois des techniques vidéo et des techniques informatiques. L'abaissement des coûts étant à la fois cause et conséquence d'un marché grand public de plus en plus vaste.

1.1 Les nouveaux supports de stockage : les mémoires optiques

L'enregistrement des données en général, et notamment des images et des sons, a bénéficié des progrès de l'optique et de l'informatique, en terme de performance et d'abaissement des coûts.

Le rayon laser, par sa précision, permet d'enregistrer un nombre considérable d'informations sur une surface de stockage, et d'aller les lire avec sûreté et rapidité. De plus grande capacité, le disque optique permet alors l'utilisation d'un mode de représentation plus "gourmand" en place. Les données ne sont plus représentées sur la surface du disque par la variation continue des éléments qui la composent (système analogique), mais échantillonnées et codées selon des valeurs binaires (système numérique). Les variations d'un sillon sont remplacées par une suite de 0 et de 1. Dernier avantage, la lecture par réflexion d'un rayon laser n'use pas la surface du disque.

C'est ainsi que, pour le son, le "disque noir" a été supplanté par le petit compact disque d'une grande durée d'enregistrement, d'une grande qualité sonore, qui n'est pas usé par son utilisation et permet l'accès à des séquences.

Qu'en est-il pour l'image ?

La famille des mémoires optiques est déjà riche d'exploits mais aussi de luttes, d'alliances, d'abandons. L'enjeu est considérable : le marché de l'électronique domestique et bureautique, et l'édition vidéographique.

Par sa grande capacité, le vidéodisque analogique Laservision est adapté pour l'édition de programmes audiovisuels ou la réalisation de grandes banques d'images fixes. (30'ou 60' d'images animées ou 54 000 images fixes par face). Le vidéolecteur peut être piloté, pour la recherche d'une image ou d'une séquence d'images, par une simple télécommande, ou par un système informatique, local ou distant (serveur). Pour ces raisons le vidéodisque a fait en France une percée institutionnelle (grandes banques d'images fixes). D'autre part, le réalisme et la rapidité d'affichage de l'image permettent d'autres types d'applications : bornes d'information, bornes d'aide à la vente, programmes de formation, jeux...

Pour trouver un marché grand public, le vidéodisque réapparaît en 1988 sous le nom de CD.V. (Compact Disque Vidéo, de 12, 20 ou 30 cm.), dont le lecteur peut lire aussi bien les CD.V. que les CD Audio. Il démarre avec un catalogue essentiellement musical.

Le CD ROM (Compact Disque Read Only Memory) peut être utilisé pour des applications comportant images fixes, textes, données informatiques. L'équipement nécessaire (lecteur, PC) l'oriente plutôt vers des applications institutionnelles ou professionnelles, toujours dans un contexte d'édition.

A l'inverse, le D.O.N. (Disque Optique Numérique) est un outil informatique institutionnel, permettant le stockage d'images fixes. Il est inscriptible, permettant la mise à jour immédiate. La qualité de l'image peut être définie au-delà des standards vidéo actuels.

1.2. Le développement des vidéocommunications

C'est-à-dire de "l'ensemble des techniques et des services communs à la télévision et aux télécommunications". En effet, le câbles, fibres optiques, ondes hertziennes, satellites, sont utilisés aussi bien pour la diffusion de programmes télévisés classiques que pour les services de communication entre usagers. La frontière entre ces deux activités tend alors à s'enrichir de nouveaux types de services, vers une plus grande interactivité de l'usager de télévision et vers une augmentation des services proposés à l'usager des télécommunications.

1.2.1. En ce qui concerne la télévision

On assiste à une augmentation considérable de l'offre d'images. Car si l'espace hertzien était relativement saturé par les chaînes généralistes nationales, de nouveaux moyens ont multiplié les vecteurs de diffusion.

Par les satellites, via des antennes individuelles ou collectives, les usagers disposent de dizaines de chaînes.

Par les réseaux câblés, reliant à l'échelle d'une ville un centre serveur à ses abonnés, 15 à 30 chaînes sont disponibles.

Pour la gestion des têtes de réseau, se sont développés des **chargeurs robotisés**, permettant de programmer automatiquement la diffusion de tous les éléments de chaque chaîne diffusée.

D'autre part, l'importance du nombre de canaux et la liaison existant entre l'usager et la tête de réseau permet de nouvelles formules de diffusion plus interactives. Au minimum "démocratisation" de la programmation par le vote des usagers appelés à choisir entre plusieurs titres possibles. Au maximum, concept de "**télévidéothèque**", c'est-à-dire choix par un usager d'un programme dans une collection disponible, qui sera diffusé sur un canal et à un horaire réservé par la tête de réseau.

Enfin, à terme, l'envoi de séries d'images fixes, à 25 images/s, sera possible pour des usagers disposant de télévisions à mémoires d'images.

Cette augmentation de l'offre signifie également une mutation qualitative. Parce que, même s'il ne cesse d'augmenter, le temps d'utilisation de la TV par un usager est limité, c'est donc en situation de très forte concurrence que se trouvent ces nouvelles offres.

D'où les chaînes spécialisées et thématiques, ciblant un public (jeunesse, musique, cinéma, sport...)

D'où au contraire la recherche d'un plus grand marché : diffusion transfrontières par satellite.

Et la nécessité de trouver des financements autres que ceux de la redevance : publicité, abonnements, paiement à la consommation (P.P.V.). Cette personnalisation de l'usage est possible par le câble, et par le cryptage des chaînes (décodeur).

D'autre part, le contexte industriel est celui de l'évolution vers la **Télévision Haute Définition**, où s'affrontent les offres européennes et japonaises.

Enfin, n'oublions pas l'essor considérable du parc des **magnétoscopes** domestiques, qui donne aux usagers la maîtrise du temps de consultation. Et leur permet en outre de disposer de l'édition vidéographique des cassettes V.H.S.

1.2.2. Les télécommunications

Bien au-delà du simple téléphone qui permet à deux usagers de communiquer, les services offerts par les télécommunications connaissent une extension considérable, grâce aux capacités de transmission des moyens utilisés (câbles, fibres optiques, relais hertziens, satellites), grâce à la numérisation des différentes données à transporter et à gérer, et grâce, en France, au volontarisme d'une administration puissante, France-Télécom. La stratégie d'implantation grand public du Minitel en est un exemple frappant.

En ce qui concerne le transport des images animées, des liaisons vidéo, fixes ou ponctuelles, peuvent être établies, comme par exemple pour les vidéoconférences.

Le projet du réseau "Numéris" est d'augmenter à 64Kb la capacité du Réseau Téléphonique Commuté, et de permettre donc à des usagers d'échanger tous types de données adaptées à ce débit. En particulier des images fixes.

Multiplication des supports, multiplication de l'offre d'images, quelles sont les implications de ces évolutions pour les bibliothèques ?

2. VIDEO ET BIBLIOTHEQUES

Quels services ces nouvelles technologies vidéo peuvent-elles rendre aux bibliothèques ? Et quels sont les exemples français ?

2.1. La sauvegarde et la valorisation de collections primaires

C'est le cas des bibliothèques conservant des fonds importants d'images originales (estampes, photographies, films). Le nombre, la fragilité, la difficulté de la recherche documentaire des images sont autant de facteurs déterminants pour rechercher une solution de reproduction de la collection. Que ce report serve de simple repérage, de catalogue ou de base de données illustrés pour professionnels et chercheurs. Ou que l'on envisage, grâce à ce report, une utilisation partielle ou globale de la collection par "l'utilisateur final" qu'est le grand public. Le report sur bande vidéo des films, la reproduction photographique et microphotographique des images fixes sont depuis longtemps pratiqués. Mais, en ce qui concerne les images fixes, les capacités et les performances des nouvelles mémoires ont permis la constitution de "banques d'images".

Ainsi, la Bibliothèque Sainte-Geneviève a-t-elle été pionnière en 1981, en reportant sur vidéodisque ses collections d'enluminures, et en proposant un logiciel très personnalisé, avec écran — mosaïque et "boîtes" d'images pour l'utilisation du fonds.

La D.B.M.I.S.T. a poursuivi dans cette voie, par le report sur vidéodisque des collections de photographies d'architecture méditerranéenne, de médecine, et des dessins des Vélins du Roi du Museum d'Histoire naturelle.

De façon concertée, les bibliothèques de la région Rhône-Alpes ont édité un vidéodisque *ViderAlpes*, comportant des collections d'images régionales de différentes bibliothèques et musées.

Les Archives Nationales ont réalisé un vidéodisque expérimental sur les sceaux.

La collection Albert Kahn reporte ses autochromes sur vidéodisque haute définition.

Le Musée d'Orsay a choisi le D.O.N. pour reproduire les œuvres selon une haute définition demandée par les chercheurs.

Enfin, la Bibliothèque Nationale a réalisé en 1989 un vidéodisque sur les collections du Cabinet des Estampes et de la Photographie concernant la Révolution française de 1789.

De vastes mémoires d'images sont ainsi constituées et peuvent être utilisées comme périphériques d'un système de recherche documentaire informatisé.

Néanmoins, les institutions ont également le souci de toucher un public moins spécialisé ou non équipé. Le disque est alors édité avec un livre de légendes, permettant, par la simple télécommande, la recherche des images (1789, Vélins du Roi,...).

2.2. L'Acquisition de leurs fonds par des collections secondaires

En France, l'offre éditoriale des mémoires optiques éditées est encore relativement limitée. Les catalogues de films disponibles sur vidéodisques sont en langue anglaise, japonaise ou allemande. Néanmoins, sous le nom de CD.V. apparaissent des programmes essentiellement musicaux : operas, variétés, illustration musicale.

L'acquisition de ces vidéogrammes pose deux types de problèmes.

Pour une consultation dans les locaux de la bibliothèque, la question des droits de diffusion est à résoudre, question difficile en raison de la dispersion des ayants droit.

Pour un prêt à domicile, se pose la question du parc de matériel. Il faut donc observer l'évolution du parc domestique de lecteurs de CD.V pour juger de l'opportunité de constituer une collection de prêt.

En revanche, l'offre institutionnelle peut être intéressante et les bibliothèques peuvent être des lieux de consultation des banques d'images fixes réalisées par les institutions.

2.3. La communication des fonds audiovisuels

Outre le report d'une collection originale, et l'acquisition de

nouveaux supports éditoriaux, les nouvelles technologies vidéo peuvent aussi être choisies comme moyen de communication des fonds au public.

Des collections de films sur support vidéo 3/4' sont depuis une dizaine d'années disponibles dans un réseau d'une centaine de bibliothèques publiques, le plus généralement par chargement manuel local ou centralisé en régie.

Les innovations en matière de communication audiovisuelle concernent trois axes : l'utilisation des mémoires optiques, la robotisation, la transmission à distance.

2.3.1. Dans les locaux de la bibliothèque

Nous avons cité les bibliothèques éditrices de leurs fonds. C'est bien évidemment dans leurs locaux que sont prioritairement utilisés les vidéodisques. Vidéodisques de médecine et d'archéologie dans les bibliothèques universitaires. Vidéodisque des enluminures à la Bibliothèque Sainte-Geneviève. *1789* à la Bibliothèque Nationale.

Mais les mémoires optiques peuvent être aussi choisies comme support de communication, sur lequel sont reportées des collections dont les droits de reproduction ont été acquis par les bibliothèques.

Ainsi la Bibliothèque Publique d'Information a reporté sa collection encyclopédique de 136 000 diapositives sur trois faces de vidéodisque. Que le vidéodisque soit utilisé par simple télécommande avec les livrets de légende, ou piloté par un système informatique adapté à la collection et au public de la bibliothèque, la facilité et l'attrait de ce nouveau mode de communication a déterminé un renouveau de la consultation des images fixes.

C'est également le vidéodisque qu'ont choisi la Médiathèque de La Villette pour ses collections d'images fixes et animées, et l'Institut du Monde Arabe pour ses collections d'images fixes.

La robotisation est le propre de grands équipements culturels des années 80, conçus comme des réalisations technologiques exemplaires.

La Vidéothèque de Paris rassemble 2 000 films sur Paris. Les usagers choisissent leur programme sur un terminal, un bras robotisé se charge d'aller chercher et de diffuser les cassettes 3/4' UMATIC correspondantes.

L'Institut du Monde Arabe intègre sur un même poste de consultation ses collections d'images fixes, d'images animées, et de son. L'I.M.A. a choisi le vidéodisque pour les images fixes, et des cassettes magnétiques 8mm à la fois pour les images animées et pour le son.

2.3.2. La bibliothèque hors les murs

Nous avons évoqué le problème du prêt à domicile des CD V., suspendu au développement du parc de lecteurs.

En ce qui concerne la télétransmission d'images fixes, deux cas de figures sont envisageables. Soit la bibliothèque est elle-même serveur d'images et transmet à tous les abonnés du Réseau Numérique à Intégration de Services équipés d'un terminal de réception. Soit tout ou partie de sa collection est disponible dans la tête de réseau d'une ville câblée, et proposée aux abonnés disposant de téléviseurs à mémoire d'images.

Pour l'image animée seule l'hypothèse du câble est envisageable, le R.N.I.S. étant insuffisant pour le transport de 25 images/s (à moins de progrès très considérables dans la compression, et la décompression des images). En revanche on peut envisager que les collections d'une bibliothèque constituent tout ou partie de la télévidéothèque à laquelle peuvent accéder les abonnés d'un réseau câblé.

EN CONCLUSION

L'audiovisuel a pris une place considérable dans la formation, l'information, la culture. Suivant cette évolution, les bibliothèques sont devenues des médiathèques. Vont-elles maintenant devenir des serveurs, en particulier d'images et de sons ?

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Management and Organisation of Video in Libraries

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ABSTRACT

The paper examines the management of videocassettes in public and academic libraries as library stock and as tools for management. The future development of the video medium is discussed and the need for an alternative conceptual framework for its management is indicated.

In the past ten years the videocassette has developed from a new, rather unpredictable technology, and an unknown quantity in terms of libraries, into a standard information carrier with a range of possible applications. Some of these applications are well established, others are still waiting to be fully exploited. In this paper I want to review the current situation, identify the problem areas and indicate where I believe there is scope for further development.

THE VIDEOCASSETTE AS LIBRARY STOCK

It is as an item of stock that the videocassette has made its most significant impact in libraries of all kinds, but the ways in which different types of library manage their video collections vary significantly : I shall discuss their management in British public and academic libraries.

It is impossible to discuss any kind of service provision without reference to its social context, and the history of the development of videocassette collections in the UK demonstrates the influence on library management of external factors particularly neatly. To take public libraries first, the boom in home-ownership of videocassette recorders and the availability of videocassettes coincided with a radical shift in government attitudes to public spending, a reduction in available funding for public institutions such as libraries, and the growth of the concept of community librarianship, which emphasised the provision of services based on the needs of users (and potential users). The earliest public library video collections, for example those in Motherwell, Scotland and the London Borough of Sutton, exploited all these factors in establishing their services : a demand existed among VCR owners, who included a substantial number of non-users of "traditional" services ; the services could be self-funding if users were charged a subscription, or a transaction fee, or indeed a combination of both. These features are maintained in the video lending services run by most public libraries today, which are characteristically self-financing (at least in terms of stock purchase if not staffing and overheads), attract a different group of users from those using conventional services, are run as separate service points and are often linked to record, audiocassette and CD loan services. Stock will include feature films, although not in direct competition with the high street video stores, often classic films and material for children. An important development is what may be called the "home education" videocassette programme, covering anything from knitting techniques, to ways to improve your golf handicap, to how to pass your driving test. There is a small, but growing area of specialist video production in social documentary films, often providing an alternative view of contemporary events from that of the mass media ; a prime example being the series of tapes tracing the impact of the national miners' strike on the people of South Yorkshire. Such "serious" material may sit uneasily amongst the sport and knitting patterns, and this is a problem of the management of public library video collections which are defined by the carrier medium, rather than the information content. There is some evidence of a move to include documentary material, especially if it has a local context, in local studies collections where it is held for reference only — necessitating of course the provision of viewing facilities. Such facilities are available in only a minority of public libraries, their development being hampered by lack of funding for capital equipment, wiring, soundproofing and so on ; fears about security, lack of space and absence of technical assistance. To summarise, the typical UK public library video service operates as a separate unit in the library, funded at least in part by subscriptions / charges and offering a predominantly leisure orientated stock for a loan period ranging from one night to one week.

The situation in academic libraries is very different, their collections having developed from a quite separate impetus. Video collections in academic libraries have their origins in changes in attitudes to teaching and learning, specifically the development of student centred, independent approaches to study and the concept of the learning resource centre, providing a focus for a student's individual learning-needs in terms of study facilities and learning materials. Whereas the main organising principle in the public library is one of format, in the academic sector it is more likely to be the information content. Free from the constraints imposed by the need to charge for video material, many academic libraries intershelve videocassettes (or at least their containers) with other materials in one main sequence. Alternatively, they may form part of a separate collection of all types of media, arranged according to subject. There will also be a wider range of video material, a factor which creates its own management problems because of the diversity of sources and the restrictions of copyright law. (New legislation will shortly take effect in the UK which will alter the provisions for, for example, the off-air recording of broadcast television programmes). A public library may be able to use one or two library suppliers for all its video material ; in contrast, an academic library will obtain its videos from some or all of the following sources : recorded directly off-air under a range of different licences, for example the Open University ; audiovisual centres in other educational institutions producing educational programmes ; specialist commercial producers including units in charities, trade unions, government and public bodies, industry and commerce ; commercial producers such as television companies, both public and independent. Keeping track of available video material, and identifying programmes on specific topics, is a specialised area of librarianship with management implications for the staffing of academic libraries.

Not only does video material originate from a large number of sources, the programme forms vary considerably, reflecting their potential use in different types of teaching and learning situation. Videocassettes are often used for convenience as a carrier medium for other material, for example 16 mm films or tape-slide programmes. In addition to complete programmes, there is an increasing number of videocassettes made up of short lengths of unstructured footage which can be incorporated into teaching in a way determined by the teacher rather than the producer. Into this category fall "samplers" of material, for example news coverage of a particular event for use in media studies courses, short foreign language broadcasts, and "trigger" videos for use in a wide range of learning situations.

Trigger videos are the antithesis of what we conventionally expect a television programme to be. In their simplest form they are an unstructured series of episodes, whose primary aim is to "trigger" a response in the viewer — hence the name. It is often said about triggers that they allow students to "rehearse" their feelings and responses in safe conditions before going into practice in the real world. Triggers are also used to develop students' decision-making skills by presenting them with a situation about which they have to comment. This may take the form of evaluating the behaviour of the players or deciding which of a number of possible courses of action should be followed. This represents quite a sophisticated development of the original concept and begins to merge into other forms of mediated teaching such as computer-based simulations, or interactive videodisc, (which I shall be discussing later). The most important aspect of this kind of programme is that it places control over the structure and use of the material in the hands of the teacher and the learner, not the producer.

I have tried to show that even at the fundamental level of stock provision, the programme content of videocassettes varies considerably, and its effective organisation and management requires a knowledge and understanding of that content's potential application and use, which is unlike that required for the exploitation of bookstock. I hope that I have also shown that stock management and exploitation differs quite considerably between public and academic libraries.

VIDEO AS A MANAGEMENT TOOL

If videocassettes are comparatively well-established as library stock, they are still underexploited as a management tool. It is possible to identify a number of areas, common to almost all types of library, in which video can be used, most importantly in the areas of staff training, user education and public relations. It has the advantages of consistency, *i.e.* it delivers a guaranteed content however often it is repeated, of saving the time of trainer or tutor in delivering the same information many times, it can be used either individually or by groups, it can demonstrate otherwise hidden processes or show remote locations, simplify complex operations by the use of graphics, slow motion, repetition or other effects, and can be used to develop positive attitudes towards the library service.

Video for staff training is a growth area in many different professions and a large amount of excellent material is commercially available, for purchase or for hire as needed. Perhaps the best known producer in the UK is the Video Arts company, who have an extensive catalogue of training material. Of necessity, much of this is fairly general in nature, and aimed at commercial rather than public sector organisations ; it can, nevertheless, be used to good effect in training programmes, especially in "attitudinal" areas such as interpersonal communications, motivation and development of supervisory skills. In addition to the provision of complete programmes, video is a very useful training aid when used to provide instant feedback to trainees in role-playing situations, demonstrations and at other occasions where there is a need for people to be able to observe and learn from their behaviour. The production of trigger videos for library staff training is an area with high potential for development, either in-house by individual libraries, or commercially for general application.

A very good example of the latter is a set of triggers dealing with staffclient relationships, entitled "Awkward customers" and produced by Media Services at Brighton Polytechnic.

Video for user education has a long pedigree, having developed out of the tape-slide packages common in academic libraries in the late 'sixties and early 'seventies. The best video material in this area is like that for any other kind of teaching : the more specifically defined its audience and its objectives, the more effective the programme is likely to be. In both this context and that of staff training, the best approach is likely to be the use, whether the design and production has been carried out in-house or commercial material is used, of short, very specific video sequences, designed to fit into a total training or user education "package".

Public relations is a comparatively new area of interest for libraries, but in the current economic climate the development of a marketing strategy has become a necessity. The PR video is becoming more common, its target audience ranging from potential clients (a significant terminological shift in itself !) to potential sources of funding. However, although short sequences for use in staff training and user education programmes can be, and are, produced successfully in-house, PR video requires a very professional approach to design and production. Expert advice is even more important than usual in the PR context, where any hint of amateurism could seriously affect the intended message. Librarians have been somewhat reluctant to grasp the marketing nettle, but it is an area of management that we cannot afford to neglect, and one in which video can play an important part.

VIDEO IN THE FUTURE

Predicting the future is a risky business at the best of times, and never more so than when new technology is involved. (The annals of audiovisual librarianship are full of unfortunate souls who backed Super-8 cinefilm, Philips 2000 videocassettes, the Quantum microcomputer etc, etc, etc.) However, I would like to make one or two predictions, which I hope will not turn out to be too rash when viewed with hindsight.

Video images stored on cassette will continue to play an important role in library collections and library management activities, but video images stored on optical formats (videodisc and in future CD formats) and increasingly linked to microcomputers (interactive video) will rapidly become standard library materials. There will be differences though in that interactive video is unlikely to be a domestic format. Materials will therefore only be available through libraries, who will have to bear the costs of investing in the necessary equipment and cope with the implications of installing, maintaining and managing complex hardware. Interactive video materials will be produced for all types of subject : academic libraries will continue their development into learning resource centres with the provision of a huge choice of interactive independent-learning materials. Public libraries will offer interactive packages concerned with local history, training in the use of new technology, advice on careers, setting up in business, art history... Some of these packages already exist, but as yet the only interactive materials commonly seen in libraries are those produced by BBC Enterprises, of which the Domesday Project is the best known example.

What about the ability of librarians to manage the incorporation of these kinds of materials and services into their libraries ? There are without doubt considerable practical problems, not least the ability of libraries to resource such developments. Technical competence in handling microcomputers and other electronic equipment is also an essential prerequisite for the future. In my view it is not the practicalities which are the problem but the attitudes which still prevail in the profession : we have to stop thinking in terms of concrete artifacts and develop a more conceptual framework for managing audiovisual materials. We have to become more aware of the nature of audiovisually transmitted information and of the ways in which our users make use of it, for only by doing this can we get away from our seemingly intractable concentration on the containers of information rather than on the information itself. To paraphrase McLuhan : it is the message, rather than the medium which should concern us.

61-RTMLA-1-E

The status and social prestige of library and information profession : an international survey

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ABSTRACT

The article outlines 500-600 documents published in the last ten years originated from 31 countries to prepare a research for the clarification of the status and social prestige of librarianship according to the program of the IFLA RTMLA's operational plan for the years 1988-1992. The article suggests to link the appropriate study and analyses of human factors to the research programs dealing with the technological problems in the field of library and information activity.

1. THE OBJECTIVE OF THE SURVEY

The objective of this survey is to summarize the regional analyses, opinions and evaluations concerning the present situation, special features, development, changes and problems within and without the profession of librarianship. The present outline should provide a basis for discussion at a large professional forum as well as prepare the subject for research, contribute to the identification of the problem to be researched and point out the direction of research. The research planned is to be conducted internationally, applying modern tools and, possibly, also co-ordinating regional research activities and initiatives.

2. BACKGROUND

The status and social prestige of librarianship was identified as a major program of the IFLA RTMLA's operational plan for the years 1988 to 1992. On regional and international levels the professional scientific and practical investigations covered the activity's object :

— information and documents — its procedures ;

— collection, storage, process and distribution of documents — and its methods.

As a result of the international argumentation of library and informational systems and networks, an international cooperation was established to conduct some of the professional surveys and research work. IFLA, as the primary international organization of librarians' associations and institutions, to promote its members' professional activity, organizes in its core programs on an international level the research and study of professional procedures.

It is desirable to link the appropriate study and analyses of human factors to the research programs dealing with the technological problems of the profession. The successful completion of such a research task would promote simultaneously the cause of librarianship and the development of the profession as well as the individual and professional group interests of librarians.

For the program of the RTMLA Executive Committee implementation has elaborated the following schedule :

Phase I

a/ Collecting publications on the profession and social prestige of librarianship. Assembling opinions and statements through personal channels.

b/ Producing on the basis of the above material, a survey to be discussed by experts attending the RTMLA's open session meeting on the occasion of the 1989 IFLA General Conference in Paris. Modifying and completing the outline with the results of that discussion.

Phase II

a/ Organizing a research team and launching research work.

b/ Conducting the investigation.

c/ Evaluation of the results of the investigation.

d/ Informing the RTMLA open session on the results at the IFLA General Conference in Moscow, 1991.

Phase III

a/ Working out an activity plan for the IFLA's work.

b/ Organizing a pre-conference session on *Promoting the status and social prestige of librarians and information experts* to be linked to the IFLA General Conference in Delhi, 1992. Utilizing and distributing the results of the reseach.

Phase I started in 1988. At its Warsaw meeting in 1988 the RTMLA Executive Committee assigned its members to launch the operation. Martina Sircelj was to gather and summarize opinions from ten countries through direct contact ; Ibolya Billédi was to co-ordinate the collection of material and to draw up the survey to be discussed by the Executive Committee and submitted to the RTMLA's Paris session.

3. COLLECTION OF MATERIAL

According to the preliminary agreement, the material collected periodical articles, conference documents and other publications dated mostly between 1980 to 1988, applying the traditional retrieval literature. The collection yielded approximately 500 to 600 documents, bibliographical descriptions and summaries, though it must be noted that it was incomplete.

National associations of librarians, institutions and leading experts in librarianship provided bibliographies compiled for this gathering as well as conference materials and summaries of their national literature on the subject.

Beside the traditional methods an online search was also applied, gathering an output of 273 records from the data base of LISA on the most recent literature on the subject from 1986 to 1988. Although no distribution was made of the compiled documents according to countries of origin, Appendix 1. *[non attached]* features the countries which provided literary information and those whose librarians' status and social prestige was appropriately documented to be included in this outline.

4. PROCESSING OF MATERIAL

4.1. General remarks

Owing to the large quantity of high-quality publications, analyses and opinions from a number of countries, their detailed processing must to some extent be limited but they provide an opportunity for introducing the most characteristic questions which make up the basis of those analyses and arguments.

It must be noted that, as regards the individual problem fields, there is an abundance of contradicting opinions in literature. This outline attempts to introduce, as far as possible, even the most extreme differences of opinions in these problem fields.

It should also be noted in general that the analyses, problems and remarks published are based on surveys and appraisals in considerable number of documents. These surveys are based on samples either representative or of a representative character. There is no full-range survey in the material compiled. Moreover, in another group of documents the problems are approached in a speculative manner. The nature of the problems makes it obvious that every question cannot be elaborated on the basis of data or surveys. Documents and conferences dealing with librarians' status and social prestige are primarily and mainly initiated by regional librarians' associations. Some inquiries are also initiated by institutions educating librarians and editors of trade papers. Over and beyond that, opinions are expressed even by library authorities, social institutions, library staff and individuals.

4.2 Introduction of subject groups

As noted above, it is impossible to give a detailed rundown on each problem of the main subject. Only the basic problems, vital for the profession's existence and development, will be listed here. If, owing to subjective judgement, the emphasis on certain subject groups in the literature at our disposal is to be changed, this will be possible to be done in the course of the discussions.

4.2.1. General evaluation of librarianship as a profession

Regardless of countries, there is nearly agreement in the general evaluation of the profession's situation : ours is a time of great changes. **The overwhelming majority of opinions agree that there have been tremendous changes in our age regarding the ancient activity of libraries :** collecting, storing, organizing and distributing knowledge. The increasing dominance of computerization, telecommunications and micro media in both science and everyday life can and indeed does make the collection and forwarding of knowledge independent of space and time. People handling and processing a document may be far away from each other in time and space. There are worldwide information systems established and operating. All this means a turning point in the activities of libraries and brings about as well as requires far-reaching changes in the professional demands of those in the trade : librarians, bibliographers, documentators, etc.

Pessimistic statements speak about a crisis situation and are uncertain of the ways the librarians' community could adapt itself to changes in technology. The group of optimists, however, regards the runaway technological development of library and information activities to be a kind of challenge that forces a healthy development upon the profession. There are quite a number of publications evaluating the situation of both the profession and its pursuers in connection with the quality of a given society's library policy, its libraries and their services, usually finding some positive correlation between the quality of the libraries' activity and the social prestige of librarianship. Such works are published mainly in high-technology areas.

There are also a considerable number of responds judging the vocation of librarianship to be at a disadvantage compared to other professions, having a low level of social prestige. That is thought to have been caused by long periods of employing incredibly cheap manpower in libraries where most of the qualified personnel had to deal with menial tasks requiring no expertise, while important positions demanding high qualifications were filled by unqualified people. It must be noted that these statements are still valid in several areas.

According to the interviewed professional librarians, however, this period is gone and a specialized, flexible library vocation is taking shape in order to provide a high-level library and information services for society.

4.2.2. Definition and requirements of the librarianship profession

The basis for defining librarianship as a profession formulating its set of demands is the activity that its workers must pursue. The authors of relevant articles and studies cover individually the profession's historical precedents, the stages of its development and the factors contributing to such development. They state that the process of the library guardian (custos) becoming a librarian is a permanent one, as the profession is even now undergoing a change, becoming increasingly diversified and specialized. The integration of other professions with librarianship is still going on, a feature noticeable throughout the process of development, similarly to other professions.

Beside the historical points of interest, an outline of the profession's career might also prove edifying in other respects : a comparative historical survey would not be devoid of interest.

In several documents there are opinions, albeit rather extreme, doubting the profession of librarianship being a vocation.

These experts suggest the question to be cleared through a sociological survey, conducting the inquiry logically in connection with the career model.

The opinions on the criteria of professionalism are mostly similar, such as

- special training is required
- written and unwritten rules are observed within the profession (a professional code)
- interests are taken care of by common organizations
- systematic development research is conducted.

The above points obviously fail to cover the whole set of criteria but represent its character sufficiently. Professionalism, the definition of professional librarianship is an important factor anyway in conducting situation-analytical studies on prestige.

4.2.3. Choosing librarianship as a profession

A rather large number of papers deal with starting a librarian's career. Most of the opinions are based on surveys conducted chiefly through questionnaires and interviews. This problem field is, understandably, broached by the educational institutions, although there are inquiries and evaluations initiated by librarians' associations, too. Beyond introducing and characterizing the triggering motives as well as discussing their effect mechanism, the authors also dwell on the difficulties of starting a career and finding jobs. It is interesting to note that among those leaving the profession next to the obvious views of condemnation some regard career changes as a natural phenomenon. However, the causes of career changes are not without interest. If an individual leaves the profession for the reason that staying would mean a manifold disadvantage for him, and such departures become a mass movement, this must be considered a negative phenomenon. On the basis of the writings it is impossible to draw a reliable picture here, especially not one that would show international tendencies. It seems to be necessary to conduct a detailed inquiry suitable for gathering data in this problem field, too.

4.2.4. Education, qualification, further education

There can be no doubt about one of the vitally important, or rather the most important, characteristic of the profession being the accomplishment and content-formal standard of the education system of the profession in question.

Our survey of professional literature shows that this problem field seems to be the most elaborated one, even though there is a wide-ranging difference in opinions concerning both the contents and form of training for librarians. The most heated debates at the moment range on whether the theoretical or practical orientations should be placed in the foreground or background. Another strongly debated problem is that of independent or twofold professional education, in close connection with qualifications. The questions concerning education cannot be separated from those of job demands or those discussing the criteria of vocation. The main questions are : is it possible to pursue the profession on librarianship without qualifications ; can it be thus called a profession at all ; and to what extent does it contribute to shaping its social prestige ?

In the field of education many authors, and not only those from educational institutions, deal with the curriculum. The problems newly arisen concern further education and its subject matter, and the connections between training librarians and library users.

It can be established that currently the most acute problem of education is the formation of an appropriate strategy for the training of information experts to be implemented according to social demand.

It might be advantageous to work out a general educational framework which allows for local peculiarities as well.

4.2.5. Ethical questions and standards

As regards the ethical questions of librarianship, most publications set out from the main functions of libraries, on the basis of which they determine fulfilment of society's library and information requirements on a high standard as the crucial point of professional ethics. Their standards stipulate the experts' relationship with their profession, its activities and their objects as well as with the professional community.

The ethical problems of the age of electronics : the availability, publicity and secrecy of information and the protection of individuals are connected as a special demand of ethics to the library and information profession.

Librarians working in certain special, e.g. medical or religious libraries, must face some very special ethical problems over the above ones. These problems are assumed to also provide a strongly influencing factor in social prestige and the status of the profession.

4.2.6. Living and working conditions

A very large number of articles and publications deal with certain problems of employment, such as working conditions, office hours, wages and other benefits. These subjects are naturally cardinal topics in every group of librarians in all countries.

Obviously, depending on social systems and political-economic situations, these problems are being debated not only at professional forums. It is to be noted that according to some opinions these questions do not belong either in the spheres of interest of professional organizations or to the criteria of professionality. Others, however, see a close relation between the levels of social prestige and wages.

Living conditions could by all means have been brought up with almost all the problem fields mentioned so far as a factor connected. Its study, therefore, is justified. A preliminary warning is due, however : international comparisons are extremely difficult to make in this field.

4.2.7. Social prestige

Social prestige was mentioned several times in the introduction to previous problem fields closely linked to the problems prevailing there. Its outstanding importance, however, makes it necessary to dedicate a separate chapter to its discussion. The experts interviewed usually insist on the low level of existing social prestige, the causes of which are debated in earnest. As regards these causes, there are many contradicting and even some rather weird statements in the documents.

As the authors of several studies explain in minute detail, the social prestige of librarianship in the individual societies is strongly influenced by the attitude towards libraries, the volume of demand for their services and the quality of their activities. Yet, the social prestige of the profession is primarily formed on the basis of judging the librarians themselves. This statement can be concluded even from the vocabulary definition of prestige which is "the respect of somebody's knowledge, expertise or possession of specially valued talents".

Concerning social prestige of librarianship, the dissatisfaction and pessimism widespread among librarians searching for the causes in society outside their community will certainly have a further negative impact on their status.

On the basis of several articles, the factors shaping social prestige can be listed as follows :

— society's demand for the performance of the profession ;

— state of development of the profession's theoretical basis, its recognition as a branch of science ;

— society's awareness of the duties and tasks of librarians ;

— educational, intellectual and character requirements for librarians ;

— salaries of the librarians.

There are only a few articles which discuss this topic objectively in a certain historical context, comparing the development of librarianship with the changes in its social prestige. Such an approach seems to provide an opportunity for conclusions that might facilitate a detailed identification of both positive and negative influencing factors in social prestige. Several documents feature the opinion that social prestige will increase when the mechanical, routine elements of the job are performed with automatic tools and the profession thus turns into a highlevel creative vocation. Other experts expect an increase in social prestige to be brought about by the change, forecasted by several of them, which would turn the traditionally cultural orientation of wide-ranging library services into a business-enterpreneurial approach. Attention must be paid to the opinions, however, according to which librarians should consciously influence a public opinion, utilizing some well-known marketing methods applied in other professions. These opinions state that it is not enough to build upon spontaneous processes — no sufficient development or appropriate result can be achieved in that way.

4.3. Recommendations for the improvement of the librarianship profession

As a matter of fact, the majority of the articles dealing with librarianship and its social prestige deal not only with the exploration of the situation but also make suggestions of an improving, developing nature. Of these recommendations here are those featured in most articles, deserving emphasis :

— a radical psychological re-evaluation of the profession covering all its factors ;

— changing the action of policy the profession, applying management methods ;

— more extensive training and further education, increasing demands ;

— improving the quality of libraries' information services ;

— testing recommendations.

Finally, some unmapped areas must also be mentioned, those that are not broached in the literature at our disposal and even refuse attempts of searching for literature on them. These are :

— the librarians' situation and the profession's social prestige in the countries (non featured in Appendix 1) *[Appendix 1 not attached]*

— the relations between professional and non-professional librarians.

62-RTMLA-2-E

Image of the Librarian/Information Professional ; a Special Libraries Association Presidential Task Force

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ABSTRACT

A library is the foundation for the discoveries of tomorrow as well as for the rich use of the past ; its products are ideas and facts. As man's knowledge increases at a faster rate every year, the importance of librarians increases likewise. All members of society, whether for work or social reasons, depend upon librarians to identify, locate, interpret and disseminate the information they require to remain competitive in their chosen field of endeavor or to enrich their personal knowledge. A library has two resources : 1) physical (books, journals and other documents) and 2) human (librarians and other information specialists). We believe society needs a better understanding of the human — his/her capabilities and value.

In 1988, the Special Libraries Association authorized the establishment of a Presidential Task Force on the Image of the Librarian/Information Professional. This task force is cosponsored and has representatives from the American Library Association, American Association of Law Libraries, American Association of School Librarians, American Society for Information Science, Art Libraries Society of North America, Association of College and Research Libraries, Medical Library Association and the Canadian Library Association. These nine associations respresent over 80,000 professionals who believe this program is vital to an informed information society.

INTRODUCTION

The membership of most library/information associations believe strongly that the perceived stereotype of librarians is detrimmental to their full, effective value to society. An inherent limitation to achievement of status by the library profession is the difficulty of clearly defining the domain of the field along with the concommitant problem of defining the role of the librarian. To this end Special Libraries Association issued in 1987, a report on the *Value of the Information Professional.*[1] This report contained case studies of corporate and academic librarians who were able to quantify the value of their staff and libraries in a cost/benefit manner to their organizations. Yet the stereotype and status of librarians remain undervalued. If the recognized value of librarians is low, perhaps it is because it is a soft profession. Yet it is ironic that in today's Information Age many in society continue, mistakenly, to perceive the librarian as a custodian of books and other documents rather than one who is putting knowledge to work and shaping society's future.

PROBLEM/NEED

Pauline Wilson, in her seminal work *Stereotype and Status ; librarians in the United States*[2] (numerous excerpts from this book are herein used), has stated the library profession has been plagued with an unfavorable stereotype. The components of the stereotype, from documents written by librarians and by members of other professions as well, consist of five parts :

1. Orderliness, meticulousness, acquisitiveness,
2. Conformity, conservatism,
3. Passivity, submissiveness,
4. Introspection, nonsocial attitudes and behavior, and
5. Anxiousness, lack of self-confidence.

This stereotype, like other stereotypes of its kind, assigns certain personality and intellectual traits to librarians. Such stereotypes are a product of social learning acquired from the media and human interaction. The stereotype of the librarian is a social fact — it is real, it is hurtful, it is untrue and it is counterproductive to our value.

Power and privilege are highly valued in every society; therefore, powerful and privileged occupations are accorded higher prestige. The three sources of occupational power are: economic, authority, and knowledge. The economic power of librarians is modest. So is their authority. It is in knowledge wherein lies their strength. Occupations that require a large amount of specialized knowledge are normally accorded greater occupational prestige, e.g. doctors, lawyers, etc. It is when society does not understand the scope and depth of knowledge required for an occupation that it accordingly does not award it an appropriate prestige. This is the case of librarians who are information specialists, researchers, counselors, managers and indeed knowledge-workers.

Some limitations to the improvement of the status of prestige are inherent in the nature of the library profession. They cannot be completely overcome. The first of these is the nature of the product provided through library service. In a broad sense it is information. The handling and provision of information is not limited to one occupation or to a group of occupations. The greater the number of occupations that claim jurisdiction over a field the more ambiguous the field will be. The more ambiguous the field, the more difficult will be the task of defining the domain of the occupations involved. Many occupations now claim jurisdiction over some aspect of information. Additionally, a fundamental characteristic of information makes the field difficult to delimit: Information is everybody's business.

This characteristic inevitably leads to uncertainty and confusion on the part of the public about what those in information-related occupations do. The public will not understand clearly what the occupation's tasks are, what specialized knowledge and skills are required to perform the tasks, and thus, what sort of recognition should be given for their performance. The result is limited or ambiguous status for the occupation. The public may not be able to distinguish among the various titles we elect to call ourselves nor the differences between the titles of our information organizations. Similarly the librarian's knowledge is sometimes assumed to be general knowledge of the contents of the books and journals in the library's collections rather than specialized knowledge of access, retrieval and dissemination of information. To sum up, an inherent limitation to achievement of status by the library profession is the difficulty of clearly delimiting the domain of the field along with the concomitant problem of defining the role of the librarian.

STEREOTYPE SOLUTIONS

It is the librarian, and their professional associations, that one must look to for improvement of the stereotype in order that this occupation's contributions to the many needs of society can be realized. The primary ones are:

1. Stop writing and talking about a stereotype that is untrue and invalid for it contributes and reinforces the library profession's poor self-image.
2. Do not assume that research about the library/information profession done by outside researchers is necessarily good, accurate or informed. The library profession has sufficient expertise to make an accurate assessment of its own worth to inform the public.
3. Do not proclaim that the stereotype is the fault of any one individual or segment of the profession. The respect of an occupational group rests on the totality of its participants.
4. Educate the public via the media to the true facts and build new images that are definitive and easily understood.
5. Exhibit to library users and management your skills, expertise and service attitude.

The real solution to the stereotype has to come from within. Librarians must acquire a better perspective on the stereotype and take the lead in effecting change. The public that stereotypes has no incentive not to do so. Although librarians cannot banish the stereotype completely, they can improve it by not adding to it and by not disseminating it, and most important, they can control their response to it. And they can portray a more positive image but it will take a long time to change a well-set stereotype. It is worth the time and effort!

TASK FORCE PROGRAM:

Purpose and Objectives

The purpose of the Task Force on the Image of the Librarian/Information Professional is to determine exactly how society perceives and regards librarians, and, if such research indicates that the perception(s) need(s) to be changed or enhanced, to prepare and implement a plan of action for the desired results. The objectives and desired results of this program are:

1. To secure a sound knowledge-base of how society perceives librarians and to know to what degree they understand what librarians do.
2. To educate information professionals, associations and the profession as to the values accorded to them by society.
3. To have reliable image data to execute a plan of action to dispel false stereotypes of librarians and to replace them with a factual and valid image.
4. To gain recognition of the importance of librarians and all information professionals and to position their value more appropriately within society's perception.

Project

The Task Force project consists of three phases:

1. A large-scale survey of 13,500 people sent to: Corporate Executives, Government Leaders, Media, Performing Arts, Community Leaders and Academic Administrators in the United States and Canada. ***(see attached)*** The survey will elicit information on the demographics of the respondents, first impressions of librarians, components of image, the expected knowledge, skills and activities of librarians, and the attitudes and value attributed to librarian/information professionals. The survey will be conducted by a professional research firm. As each segment is large, it is expected that the return sample will be representative (see Annexe).
2. A marketing plan containing the results of the survey will be developed by the Director of Communications, Special Libraries Association. Distribution of the survey results will be to all library/information associations (and through them to all of their members), educational administrators and the general press. The Task Force members will develop a strategic plan of action to: a) counteract bad image stereotyping of librarians, and b) present role models of librarians and their contributions to society.
3. Implement a plan of action to change or enhance the image of the librarian/information professional. The plan consists of three parts:
   a) Written articles in leading journals that are read by business, education and information professionals as well as the general public. Professional talks will be given which position the librarian as an essential and contributive element of society.
   b) Media presentations on public broadcast and cable television about librarians — what they do and what their value is. Contemplated video clips are:
      - Food librarians collaborating in the discovery of new food products
      - Art/Museum librarians preserving our heritage
      - Patent librarians helping corporations save megabucks and avoiding patent infringements
      - Medical librarians contributing to diagnostic and operating room solutions
      - Financial librarians expediting business mergers and acquisitions
      - Prison librarians working to educate and rehabilitate the incarcerated
      - Technical librarians helping to build space and exploratory programs
      - Scientific librarians contributing to Nobel Award winners' technological discoveries
      - Librarians as Society's Access to the World of Information
   c) Education of guidance counselors and high school and undergraduate students about the work and value of the librarian/information professional that would present this occupation as a desirable and rewarding career. This would be accomplished by career brochures, videotapes and/or presentations at selected schools by Task Force members.

The survey will be conducted Spring 1989 and the results will be available June 1989. The marketing and action plans will be implemented during 1989-1990.

CONCLUSION

The purpose of this program is to demonstrate the effectiveness of librarians in solving social, economic and technological problems of our society and to improve the image of librarians from one of passive library custodian to one of active information providers for the betterment of mankind. We need to know better what the stereotype is and then we will be able to construct programs to change or enhance it so our value is understood, recognized and rewarded. This program is important to the approximate 165,000+ information professionals who are a vital part of society.

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ANNEXE

SURVEY
ON
LIBRARIANS/INFORMATION PROFESSIONALS

1. **Where do you think most people get their ideas about librarians? Check all that apply.**

(5) -1 ☐ Family
-2 ☐ Personal experience
-3 ☐ School experience
-4 ☐ TV and movies
-5 ☐ Books/Magazines/Newspapers

2. **When did you first form an opinion about librarians?**

(6) -1 ☐ Child
-2 ☐ Teenager
-3 ☐ College
-4 ☐ Adult

3. **How would you assess your general experiences with librarians?**

(7) -1 ☐ Positive -2 ☐ Negative -3 ☐ Mixed

4. **Do you have a friend or relative who is a librarian?**

(8) -1 ☐ Yes -2 ☐ No

5. **Circle the correct adjective and using the scale indicate what best fits your job-related view of librariens.**

	very	somewhat	neither/nor	somewhat	very	
	-1	-2	-3	-4	-5	
People Oriented	(9) ☐	☐	☐	☐	☐	Task Oriented
Career Oriented	(10) ☐	☐	☐	☐	☐	Job Oriented
Service Oriented	(11) ☐	☐	☐	☐	☐	Money Oriented

Personality related view of librarians.

	very	somewhat	neither/nor	somewhat	very	
	-1	-2	-3	-4	-5	
Aggressive	(12) ☐	☐	☐	☐	☐	Passive
Approachable	(13) ☐	☐	☐	☐	☐	Aloof
Imaginative	(14) ☐	☐	☐	☐	☐	Unimaginative
Shy	(15) ☐	☐	☐	☐	☐	Assertive
Rigid	(16) ☐	☐	☐	☐	☐	Adaptable
Responsive	(17) ☐	☐	☐	☐	☐	Unresponsive
Reactive	(18) ☐	☐	☐	☐	☐	Pro-active
Youthful	(19) ☐	☐	☐	☐	☐	Old
Responsible	(20) ☐	☐	☐	☐	☐	Irresponsible
Dedicated	(21) ☐	☐	☐	☐	☐	Unconcerned

6. **How much education do you think the typical librarian has?**

(22) -1 ☐ High school
-2 ☐ College (BA-BS)
-3 ☐ Masters
-4 ☐ Doctorate

7. **How much do you think the average librarian earns annually?**

(23) -1 ☐ Under 18,000
-2 ☐ 18,000-24,000
-3 ☐ 25,000-34,999
-4 ☐ 35,000-44,999
-5 ☐ 45,000-59,999
-6 ☐ 60,000-69,999
-7 ☐ 70,000 and over

8. **When you need information to whom do you go for assistance?**

(24) -1 ☐ Friends/family
-2 ☐ Colleagues
-3 ☐ Your secretary
-4 ☐ Other employees
-5 ☐ Librarians
-6 ☐ Other
(please specify) ____________________

9. **Which of the following types of libraries have you ever used and which have you used in the last 12 months?**

	Type of library	Ever used	Used last 12 months	Type of library	Ever used	Used last 12 months
(25)	School	-1 ☐	-2 ☐	Law	-9 ☐	-10 ☐
	Public	-3 ☐	-4 ☐	Medical	-11 ☐	-12 ☐
	College University	-5 ☐	-6 ☐	Other	-13 ☐	-14 ☐
	Business/Corp.	-7 ☐	-8 ☐	(please specify) ____________________		

10. **Why do you use libraries?** Check all that apply:

(26) -1 ☐ Business
-2 ☐ Hobby
-3 ☐ Recreation
-4 ☐ Research
-5 ☐ School work
-6 ☐ Other
-7 ☐ Don't use libraries

11. **How often do you use a librarian for:**

		Most of the time -1	Sometimes -2	Infrequent -3	Never -4
Recommendation of a book video or other items	(28)	☐	☐	☐	☐
Basic information about a subject	(29)	☐	☐	☐	☐
Help in solving a problem	(30)	☐	☐	☐	☐
Identifying the best article or book on a subject	(31)	☐	☐	☐	☐
Providing comprehensive information on a topic to help you in your decision making	(32)	☐	☐	☐	☐
Helping you define and clarify your specific need	(33)	☐	☐	☐	☐
Assisting you in advancing your personal goals and the goals of your organization	(34)	☐	☐	☐	☐
Help for yourself or a family member with school work	(35)	☐	☐	☐	☐

12. **Please rate service you receive from librarians.**

		Excellent		Unsatisfactory	
	5	4	3	2	1
Accuracy	(35) ☐	☐	☐	☐	☐
Reliability	(36) ☐	☐	☐	☐	☐
Timeliness	(37) ☐	☐	☐	☐	☐
Usefulness	(38) ☐	☐	☐	☐	☐
Value	(39) ☐	☐	☐	☐	☐

13. **Check the three skills you consider most important for the good performance of a librarian.**

(40) 1 ☐ Analytical
2 ☐ Communication
3 ☐ Financial management
4 ☐ Interpersonal
5 ☐ Research
6 ☐ Subject expertise
7 ☐ Teaching
8 ☐ Technological

14. **In the following lists of job titles, which do you perceive to command the higher salary. Rank in order from one to eight, one being the highest salary.**

(41) 1 ☐ Librarian
2 ☐ Head Librarian
3 ☐ Information Scientist
4 ☐ Manager Technical Information Center
5 ☐ Director Library Services
6 ☐ Information Specialist
7 ☐ Research Librarian
8 ☐ Manager Information Services

15. **Are you**

(42) 1 ☐ male
2 ☐ female

16. **What is the highest level you have completed**

(43) 1 ☐ High school
2 ☐ College
3 ☐ Graduate school

17. **Please check your age group**

(44) 1 ☐ Under 21
2 ☐ 21-30
3 ☐ 31-40
4 ☐ 41-50
5 ☐ 51-60
6 ☐ over 60

18. **Please check the descripton below that best describes your occupation**

(45) 1 ☐ Community leader/local elected official
2 ☐ Corporate executive
3 ☐ Federal legislator
4 ☐ State/provencial legislator
5 ☐ Entertainment media writer/director/producer
6 ☐ Media/news information writer/editor

19. **What was your 1988 household income before taxes**

(46) -1 ☐ Under 30,000
-2 ☐ 31,000-49,999
-3 ☐ 50,000-74,999
-4 ☐ 75,000-99,999
-5 ☐ 100,000-149,999
-6 ☐ 150,000-199,000
-7 ☐ 200,000 and over

20. **What is your business or postal code?**

(47)-
(51)

21. **How would you describe a librarian?**

(52) ______________________________

(53) ______________________________

(54) ______________________________

(55) ______________________________

Thank you for your participation. Please mail in the stamped self addressed envelope to Ms. Carol Greenwald, 688 Forest Ave., Larchmont, N.Y. 10538.

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Statistics and Evaluation in French University Libraries

by

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ABSTRACT

The evaluation of university libraries in France started in 1982 with conferences and separate studies conducted in several university libraries. The work was accelerated as new services were being offered and the wide use of new technologies showed the necessity of defining library objectives and devising indicators of library performance. The set of indicator tables described in the paper is meant to help each library to monitor the quantity and quality of its documentation services by choosing the indicators that are pertinent to the proper function of the library.

The initiative to collect and publish university library statistics in France was taken by the Ministry of Education which is responsible for the administration of these libraries. The decision to publish such data was made in 1952, and since then we have the statistics for the years 1953-54 to 1959-60 which appeared in the Bulletin d'information de la Direction des Bibliothèques de France, later on in Bulletin des Bibliothèques de France. The tables contain basic data of services to the public (number of users, frequency of visits, number of reading places, and loan transactions) and of library growth (addition to collections).

The sixties were marked by a rapid development of higher education. Many university centres were created and later became universities proper, with consequences for the establishment of new libraries. No statistics are available for this period (1960-1973). Meanwhile, France participated in the international standardization of library statistics.

This labor bore fruit in 1976 with the publishing of 1974 data in the first Enquête statistique générale auprès des bibliothèques universitaires (ESGBU). ESGBU statistics have since that time been published yearly and consist of two parts. The "Sections" (i.e. Service points) part is a report of the development of resources (staff, area, materials, collections), rate of growth and expenditure. The second part "Ensemble de la bibliothèque" is an account of the redisbursement of grants in each administrative unit (area, staff, acquisitions, binding, current functions). The ESGBU statistics were published in Bulletin des Bibliothèques de France 1974 to 1984, later on by the Direction des Bibliothèques, des Musées et de l'Information Scientifique et Technique (DBMIST), which added several improvements. Since 1975, statistics of interlibrary lending have been published regularly. Since 1985, searches in databases are reported as well though not yet published.

The year 1982 was a dividing point in the statistics of university libraries in France. The Association of the universities of French-speaking countries (AUPELF) held a meeting at Nice on the evaluation in university libraries, with representatives of 30 French libraries. The evaluation theme about the goal and function of university libraries was further developed in ten libraries which conducted separate studies on the use of collections of periodicals and reference materials, on the causes of non-satisfaction of requests, on delays of document delivery, on database searches and on charges for photocopies. However, according to the report published by DBMIST in 1984, these studies did not fully resolve the evaluation problem because no objectives were defined which could serve as a point of reference and comparison with the values actually obtained. Only one library, that of the Université de Technologie de Compiègne, used a set of indicators. The other libraries had to find their own way of how to proceed from a statement of facts to evaluating them.

The library statistics collected on the national scale could not be used as the starting point of a dynamic evaluation. Though these statistics enable individual comparisons - always assuming that the reported data have been arrived at by comparable methods - they do not say anything about several aspects of library activities and cannot replace local evaluation work in each library. It really is only this work - which should be an integral part of every activity - that can say something about wether the library serves its purpose or not.

The re-forming of questions posed to libraries coincided with the start of new services and the extended use of new technologies, causing economic problems and necessitating the evaluation of costs and performance. Some services (interlibrary lending, searches in databases) became chargeable to the user which again raised the question of how fees should be calculated and, on the other hand, making libraries aware of the fact that they should ask themselves how they respond to the demands of the users. Automation of library catalogues loomed large in these deliberations : it was difficult to come to a right decision in view of the costs of investment and the costs of operating the system which could have grave consequences for the library. One had also to weigh those costs against the hoped-for results, or the results actually obtained.

The modernization of libraries occured at a time when the autonomous organization of documentation services in each university was being questioned, leading at last to the transformation of the central university library into the documentation centre of the university. The aim was to integrate each library fully into the university complex and to achieve an unique and coherent documentation system in a federation of university libraries. Each of them can choose to which degree it wants to participate depending on whether it is a full or an associate member, but the persons responsible (president, councillors, director of the documentation service) are asked to develop a documentation policy acceptable to the whole university, and to elaborate objectives according to their own priorities.

The statutory development coincided with changes of the allocation of grants nation wide, featuring four-year research contracts and contracts for the first and second years of university study. These contracts include a section on documentation services : the redisbursement of grants to university libraries is no longer wholly dependent on norms (by number of students and number of disciplines taught) though the largest part of the grant is still due to the application of these criteria. The contracting practice in conjunction with the introduction of contracts to modernize university libraries presupposes the definition of the objectives of documentation services and the development of aids to evaluate the results. The documentation requirements have thus led to collection development policies according to the Conspectus method.

All these reflections led to the view that libraries should neither be judged nor financed by criteria of potentiality, rather by their objectives and in how far these were being fulfilled. The ESGBU statistics gave no answer to these questions. One needed an aid based on pertinent, fairly recent and fairly reliable data which could be assessed rapidly so that proper measures could be taken if necessary.

That is why DBMIST appointed a study group in the autumn of 1984 charged with devising a set of indicators to this purpose. The group of directors of university libraries was presided over by Gérard Thirion, Inspector General of Libraries. Their first draft was discussed and improved in meetings with more than 200 librarians during the year 1986. In 1987 it was tested in eight libraries, i.e. Amiens, Montpellier, Mulhouse, Nancy, Cujas, Paris VI, Paris X and Paris XI.

The set of indicator tables ("tableau de bord") should enable to monitor library activities, compare them with fixed objectives and assist in devising means to achieve the objectives. The resulting data can be analysed horizontally to compare library with library, or applied for the purpose of longitudinal study of each individual library. Far from aspiring to conformity of behaviour, the method serves to illustrate the needs of each individual university library.

The set of indicator tables does not replace nation wide library statistics, neither is it an automatic tool of management. It should help to make decisions concerning the different components of the documentation service on a practical basis understandable to all. It should assist the university management in adjusting to demands and in optimising the use of resources. It complements the formulation of the documentation policy at each university and contributes to the definition of priorities whether originating in disciplines, organization of services, or equipment.

The set of indicator tables should also serve as a feedback as it shows in how far the objectives have been attained. Adjustments of procedures can be made to arrive at a model best suited to the particular characteristic of a particular university.

The set of tables is based on a system of indicators. According to Daniel Renoult, director of the university library in Paris X- Nanterre, "an indicator can be defined as a numeric representation of a variable of relevance to the management. Numeric representation implies accuracy, stability, comparability, and validity. Ideally, an indicator should be devoid of any ambiguity". Indicators are usually expressed as relative rather than absolute values, to reflect the state of an organism at a given moment. Such a set of indicators, if derived from a regular collection of raw data, differs in its starting point from traditional statistics.

The chosen indicators are really interpretations of statistical data. Some indicators are expressed as ratios, e.g. the visiting rate, the rate of free access to collections, the rate of satisfaction of interlibrary lending requests, the percentage of loans of recently acquired items, and the growth rate.

Other data are collected and compiled to express in index figures the library activity, the ratios of staff to population served and the workload. In this respect, the current testing could not confirm the hypothesis of the project, i.e. that it should be possible to arrive at a single index expressing the work load of the whole library by combining and weighing individual indexes of each separate activity, such as loan, acquisition, database search, etc. Even if possible, a single index would in fact mask the sigularity of its components and anyway would not contain all of them.

Other data are expressed as averages (means) of delays of acquisition, cataloguing, and interlibrary loans.

In summary, the main indicators in the tables are the population served, staff, activities of the sections, work load of the sections, development of collections and costs of services.

The most innovative aspect of this set of tables is the operational analysis of the costs of management. Each component -acquisition, cataloguing, conservation, communication, reference, database searching, interlibrary lending, networking, administration, maintenance of the premises - is studied by its function. Though well known in other countries, such an analysis is relatively new in French university libraries (see work of Gérard Thirion at Nancy in 1976).

The functional analysis of the management costs aims at calculating the global costs of each function based on the study of the various components.

Its prerequisite is to know the share of each category of staff in each function, the staff expenditure per function being then encoded in the average cost per year per category. This calculation was not practised before in French university libraries which are organized by scientific disciplines and where the employees carry out multiple and varying tasks. The responsibility of every person has to be defined independently of the organization of the library. This approach has a dynamic effect because it runs parallel with the idea that every employee is partly responsible for the smooth running of the institution.

The cost of a function includes, besides staff costs, documentation environment, i.e. everything else required for the proper execution of the function (cost of acquisition of materials and equipment).

The assessment of services during a certain period of time allows for an even deeper analysis through a break-down into cost per unit. The relation between the global costs of a function and the corresponding volume of activity shows the cost per unit, e.g. cost of acquisition, of cataloguing, of an interlibrary lending transaction or of a minute of consultation of a database. This cost is global including both direct and indirect costs, whether these figure on the library budget or not. Knowing these costs makes it possible to arrive at charging policies which differentiate between subsidised and non-subsidised services.

The data on costs per unit and on workload per activity enable further to assess the effects of modernization and to extrapolate in the future which in its turn facilitates the formulating of a policy adapted to the objectives.

The analysis of the costs of functions would not be complete without posing the question of opportuneness of the related expenditures. The evaluation of an activity is not only quantitative, but qualitative as well. The quality can be assessed objectively by studying the steps of the documentation process, or subjectively by interviewing the users. The final analysis should show whether the collections and the services of the library are adequate to the demands of the users and what is the level of satisfaction.

The set of indicator tables presented here is being tested at present. It is necessary to point out that the whole exercise can only be successful if based on a solid series of statistical data from which the indicators are derived, in order to eliminate errors of interpretation and temporary deviations.

The second point is that assessing activities requires evaluations and sampling procedures which may be difficult to carry out. To evaluate the use of collections one has to take into account not only the registered loans, but also the use of the freely accessible materials. Likewise, the use of the library does not solely depend on registered borrowers, but on all persons actually consulting the library. These are two examples of data that enhance the public image of the library. These evaluations have to be in the same way pertinent and not too heavy, because librarians should not mainly be concerned with accounting for their work, but with servicing their patrons and facilitating the use of the library.

The third point is that the set of indicator tables should not be adopted without some caution : a suitable group of persons acquainted with the demands on statistics and evaluation should first be instructed in the application of the tables. Courses may be necessary to make more people familiar with the exercise.

The last and most important point is that the objectives of the library - arrived at through a dialogue between the staff and the users, and through deliberations of the management - must be clearly defined before the tables are adopted. Once the objectives are stated, the whole set of indicator tables should be regarded as a model choosing those indicators which are suitable and keeping a wachtful eye on their progressive implementation.

PRINCIPAUX INDICATEURS DU TABLEAU DE BORD

01 EVOLUTION DU PUBLIC

TAUX DE PENETRATION DU PUBLIC PAR CATEGORIE DE LECTEURS
(RAPPEL : TOTAL LECTEURS BU)

	(ANNEE)	(RAPPEL ANNEE PRECEDENTE)	(ECART / ANNEE PRECEDENTE)
$\frac{\text{LECTEURS INSCRITS PAR CATEGORIE x 100}}{\text{LECTEURS POTENTIELS DE LA CATEGORIE}}$			

02 ENCADREMENT EN PERSONNEL

TAUX D'ENCADREMENT DU PUBLIC DE LA SECTION PAR CATEGORIE DE PERSONNEL

NOMBRE DE LECTEURS INSCRITS / NOMBRE D'AGENTS			

INDICES D'ENCADREMENT DU PUBLIC DE LA SECTION PAR CATEGORIE DE PERSONNEL

TAUX D'ENCADREMENT DE LA SECTION / TAUX MOYEN DE LA BIBLIOTHEQUE			

ENCADREMENT DU PUBLIC DE NIVEAU RECHERCHE PAR CATEGORIE DE PERSONNEL

TOTAL LECTEURS RECHERCHE / NOMBRE D'AGENTS DE LA CATEGORIE			

03 ACTIVITE DE LA SECTION

INDICES D'ACTIVITE DE LA SECTION

LIBRE ACCES : ESTIMATION DU NOMBRE DE DOCUMENTS CONSULTES			
PRET A DOMICILE : NOMBRE DE DOCUMENTS PRETES / LECTEUR INSCRIT			
COMMUNICATION SUR PLACE : NOMBRE DE DOCUMENTS COMMUNIQUES / LECTEUR INSCRIT			
RECHERCHE DOCUMENTAIRE INFORMATISEE : NOMBRE DE RECHERCHES / LECTEUR DE NIVEAU RECHERCHE			
PRET ENTRE BIBLIOTHEQUES EMPRUNTEUR : NOMBRE DE DEMANDES SATISFAITES / LECTEUR DE NIVEAU RECHERCHE			
FORMATION DES USAGERS : DUREE MOYENNE DE FORMATION			

04 CHARGE DE TRAVAIL DE LA SECTION

INDICES DE CHARGE DE TRAVAIL DE LA SECTION : PERSONNEL SCIENTIFIQUE

NOMBRE D'HEURES DE SERVICE PUBLIC / AGENT			
NOMBRE DE TITRES ACQUIS / AGENT			
NOMBRE DE TITRES CATALOGUES / AGENT			

INDICES DE CHARGE DE TRAVAIL DE LA SECTION : PERSONNEL TECHNIQUE

NOMBRE D'HEURES DE SERVICE PUBLIC / AGENT			
NOMBRE DE TITRES ACQUIS / AGENT			
NOMBRE DE TITRES CATALOGUES / AGENT			

INDICES DE CHARGE DE TRAVAIL DE LA SECTION : PERSONNEL DE SERVICE

NOMBRE D'HEURES DE SERVICE PUBLIC / AGENT			
NOMBRE DE VOLUMES EQUIPES / AGENT			
NOMBRE DE DOCUMENTS COMMUNIQUES + PRETES / AGENT			

B) QUALITE DU SERVICE RENDU

OUVERTURE DE LA BIBLIOTHEQUE

	(ANNEE)	(RAPPEL ANNEE PRECEDENTE)	(ECART / ANNEE PRECEDENTE)
DUREE ANNUELLE D'OUVERTURE DE LA BIBLIOTHEQUE / NOMBRE DE JOURS			

CAPACITE D'ACCUEIL DES SALLES

PLACES ASSISES x 100 / NOMBRE DE LECTEURS INSCRITS			

DISPONIBILITE DES DOCUMENTS

ACQUISITIONS DE LIVRES : DELAI MOYEN DE COMMANDE			
DELAI MOYEN DE DISPONIBILITE DES LIVRES COMMANDES -LIVRES FRANCAIS			
-LIVRES ETRANGERS			
LIBRE ACCES : NOMBRE DE VOLUMES EN LIBRE ACCES x 100 / NOMBRE TOTAL DE VOLUMES			
EXISTENCE D'UN SYSTEME DE PRET INFORMATISE	OUI - NON	OUI - NON	

PRET ENTRE BIBLIOTHEQUES

TAUX DE SATISFACTION DES DEMANDES EXPEDIEES			
DELAI MOYEN DE SATISFACTION (EN NOMBRE DE JOURS) POUR L'OBTENTION D'UN PRET D'ORIGINAL			
POUR L'OBTENTION D'UNE REPRODUCTION			

RECHERCHE DOCUMENTAIRE INFORMATISEE

TEMPS MOYEN D'UNE RECHERCHE			
APPRECIATION DU DEGRE DE SATISFACTION PAR L'USAGER			
PRIX MOYEN FACTURE A L'USAGER POUR : 1 INTERROGATION			

SIGNALEMENT DU FONDS : LIVRES

% VOLUMES CATALOGUES PAR TRAITEMENT AUTOMATISE			

SIGNALEMENT DU FONDS : PUBLICATIONS EN SERIE

% TITRES LOCALISES AU CATALOGUE COLLECTIF NATIONAL /TOTAL TITRES			

ADEQUATION DE LA POLITIQUE D'ACQUISITION

% NOUVELLES ACQUISITIONS EMPRUNTEES AU MOINS 1 FOIS DANS L'ANNEE			

CONSERVATION DES COLLECTIONS

% DEPENSES DE CONSERVATION / DEPENSES D'ACQUISITION			
EXISTENCE D'UN SYSTEME ANTIVOL	OUI - NON	OUI - NON	

C) EVOLUTION DES RESSOURCES DOCUMENTAIRES

LIVRES

TAUX D'ACTUALITE DU FONDS : % FONDS RECENTS (MOINS DE 5 OU 10 ANS SELON LES DISCIPLINES) / TOTAL DU FONDS			
TAUX DE DISPARITION : % DES VOLS PAR RAPPORT AU FONDS RECENT			
TAUX DE RENOUVELLEMENT : % ACQUISITIONS / FONDS RECENT			
NOMBRE DE VOLUMES ACQUIS PAR LECTEUR INSCRIT			

PUBLICATIONS EN SERIE

% TITRES NOUVELLEMENT ACQUIS/TITRES VIVANTS			
% TITRES SUPPRIMES / TITRES VIVANTS			
NOMBRE D'ABONNEMENTS PRIS / LECTEUR INSCRIT			

D) COUTS DES SERVICES : VOIR TABLEAU SUIVANT

DEPENSES DE LA BIBLIOTHEQUE EXERCICE

	PERSONNEL (1)	ACQUISITION DE DOCUMENTS	ENVIRONNEMENT DOCUMENTAIRE	AUTRES DEPENSES	TOTAL	POURCENTAGE
ACQUISITION LIVRES + AUTRES DOCUMENTS				xxxxxxxxxxxxxxxxxxxxxxxxx		
ACQUISITION PUBLICATIONS EN SERIE				xxxxxxxxxxxxxxxxxxxxxxxxx		
TRAITEMENT LIVRES + AUTRES DOCUMENTS		xxxxxxxxxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxxxxxxxxx		
TRAITEMENT PUBLICATIONS EN SERIE		xxxxxxxxxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxxxxxxxxx		
CONSERVATION		xxxxxxxxxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxxxxxxxxx		
COMMUNICATION + PRET		xxxxxxxxxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxxxxxxxxx		
REFERENCE		xxxxxxxxxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxxxxxxxxx		
RECHERCHE DOCUMENTAIRE INFORMATISEE		xxxxxxxxxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxxxxxxxxx		
PRET ENTRE BIBLIOTHEQUES EMPRUNTEUR		xxxxxxxxxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxxxxxxxxx		
PRET ENTRE BIBLIOTHEQUES FOURNISSEUR		xxxxxxxxxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxxxxxxxxx		
RESEAUX		xxxxxxxxxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxxxxxxxxx		
FORMATION DONNEE		xxxxxxxxxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxxxxxxxxx		
FORMATION RECUE		xxxxxxxxxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxxxxxxxxx		
ANIMATION SCIENTIFIQUE ET TECHNIQUE		xxxxxxxxxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxxxxxxxxx		
ADMINISTRATION		xxxxxxxxxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxxxxxxxxx			
MAINTENANCE DES LOCAUX		xxxxxxxxxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxxxxxxxxx			
AUTRES		xxxxxxxxxxxxxxxxxxxxxxxxx				
TOTAL						
POURCENTAGE						

(1) DONT DEPENSES EN PERSONNEL SUR BUDGET PROPRE DE LA BIBLIOTHEQUE

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IFLA GENERAL CONFERENCE AND COUNCIL MEETING PARIS 1989

Division: Management and Technology
Section/RT: Statistics

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Library Statistics - for What Purpose ?

by

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LIBRARY STATISTICS - FOR WHAT PURPOSE?

By Morten Laursen Vig

As head of a national central agency which is responsible for the collection of statistical data from the libraries, and which has been increasing its demands on the libraries for more detailed statistics considerably during the past few years, I must be prepared to explain for what purpose we want all these data. I have, of course, on such occasions enumerated all the traditional justifications (to which I shall be returning shortly), but I have also experienced a growing doubt about the absolute validity of some of the arguments and about the value of library statistics for some of the purposes for which we maintain that we collect the data.

Statistical data can be used (1) to describe a libray or a group of libraries at a certain time, or (2) to describe the development of a library or a group of libraries over a span of years, or (3) to make comparisons between two or more libraries or groups of libraries. But the descriptions and comparisons are bound to be confined to those facets and activities which are reflected in the available statistical data, and they depend on the strict adherence on the part of the libraries to generally accepted standards.

This, of course, raises at least two questions: Are we collecting the relevant statistical data? And: Are there adequate standards in this field?

Let me deal with the latter question first. The international library standard, ISO 2789, on which the UNESCO statistical questionnaire (and thus, the UNESCO library statistics) is based, has been under revision for some years, but now the final version is being prepared for publishing. The standard has been considerably extended in terms of activities counted and specified, and much time has been spent in clarifying the definitions and harmonizing them with those of other standards.

There is no doubt that this standard, if adhered to, will allow a more detailed description of libraries and library activities than hitherto seen, and would also guarantee reasonably reliable comparisons between libraries. But this does rather imply that all national standards are based on ISO 2789, you might almost say, as a minimum requirement; and, as members of this section will undoubtedly remember, the representative of UNESCO, Mr Hochgesand, at the open meeting of this section during the IFLA General Conference in Brighton in 1987 did express serious doubts as to the ability of the majority of the member states to meet the requirements of the standard.

However, by far the most important question concerns the relevance of the data which are collected for the library statistics. What is it that we measure? And how do these data relate to library services and to the efficiency of the library? And can they be used when trying to determine to which degree the objectives of the library are being fulfilled?

Library statistics are compiled and arranged at three different levels, at the local level, at the national level, and at the international (world-wide) level. The traditional answers to the question posed in the title of this paper, namely for what purpose? would be:

At the local level: To provide the library management with an instrument to be used in the process of planning and adjusting the further development of the library,

at the national level: To tell the funding authorities how the libraries use their ressources and to help them decide on their priorities between the libraries and possibly also between the library sector and other sectors, and

at the international level: To contribute to giving the rest of the world an idea of the cultural development of a certain country by acting as an indicator of the priorities given to knowledge and the dissemination of information, and to provide a means of comparison between the countries.

The library statistics, according to the international standard, give a quantitative description of the library´s holdings, they measure the activities of the library: The number of new items acquired, of journals subscribed to, of loans requested and loans effected etc., and they account for the ressources of the library, for the money spent on the running of the library, and for the staffing.

The size of the collections is measured and counted, in running metres and in volumes or other physical units with specifications according to purely formal criteria (categories of documents), but not subject fields. We also count the acquisitions during the previous year within each of the same categories, and these figures, of course, come in very useful considering that without a precise knowledge of the size and the annual net growth of your collections you cannot have any reliable plans for the physical development of the library.

But the data do not tell anything about the relevance of the collections as far as the needs and wants of the patrons are concerned. It has been maintained (e.g. by Maurice Line in a lecture given in Copenhagen last February) that on an average 40 % of all monographs acquired by university libraries will never be used. This the library statistics do not reveal, they just leave it to the unprepared reader of the statistics to take it for granted that the higher the total number of new acquisitions, the better the wants of the users are met. And the library management does not get any help from these data when trying to adjust the acquisitions policy of the library.

The traditional output of the library is the number of books borrowed by its patrons. So we count the number of loans registered by the library, even if we know that a considerable part of the use made of library material takes place within the library, without the intervention of the staff. On the other hand we do not know how many of the documents borrowed, especially from the closed stacks, are in fact falling short of the borrower´s expectations, but we do know that more than a few books are required by the borrower just in case they should contain something of interest. We also carefully put on record all requests to and from other libraries; and we carefully count all interlibrary loans.

Of course we need these data when we wish to ascertain the extent of the national and international library cooperation, and of course the library must try to get an idea of the use made of its collections as well as of the shortcomings. But the statistics tell us little or nothing about the quality of these services, and they do not measure a number of other functions which are also important facets of the services that the libraries are supposed to provide, but are difficult to quantify, such as e.g. guidance in the use of the library, assistance in refence work, or searches in databases.

One of the innovations suggested in the ISO Working Group which was in charge of the revision of the international standard for library statistics, ISO 2789, was, in fact, the counting of searches in databases, bibliographic and others relevant to library services. This proposal was, however, turned down for the time being on the ground that this field of activity was not sufficiently developed in most of UNESCO´s member states, that it would be difficult to define the items to be counted, and that the library statistics were already complicated enough.

The dominant feature of the library statistics which we employ is that they measure the activities of the library, activities that can easily be related to the staffing of the library and give an idea of its productivity. This, of course, is important, even if there is a certain risk that it might be misused as long as the only available measure of library output is the circulation statistics, for instance by relating the total expenditure to the number of loans as a means of establishing the utility value of the library. But the real problem with library statistics is that they do not provide a tool suitable for describing the relevance of the collections or the efficiency of the services offered by the library. They cannot tell us much about the degree to which the library´s objectives are fulfilled and even less about how the users´ wants and needs are satisfied. In short, the library statistics as they are prescribed in the ISO standard and are being practised in most countries, cannot be used to describe the library´s performance and does not aim at this.

The user´s opinion of the library depends on his or her experience of its efficiency in providing the information wanted. The indicators of this efficiency are not the number of books acquired by the library, nor the number of loans issued, but factors such as hit rate in the catalogues, availability of documents, delivery time and access to information systems. Therefore, if we want to measure the library´s performance we have to include in our statistics such data as will describe and quantify these indicators. This again presents interesting methodological problems, which I am not going to discuss here; but the basic difference between the data we collect for the present library statistics and the data needed for an assessment of library performance is that the latter category must be based almost totally on sampling, and the succes of such a procedure depends largely on a methodical approach.

The deteriorating finances of most countries during the last decade have made the ministers of finance very restrictive, and consequently the appropriate departments are looking for criteria for the distribution of the decreasing funds in a way that is objective and, if not necessarily just, then at least justifiable. Therefore, library statistics have been of special interest lately; they could be used as the tool which the authorities feel they might want when justifying their decisions.

In Denmark we have, for some years, been discussing a model for allocation of funds to the university libraries and other libraries in institutions of higher education, and it has now been decided by the Ministry of Education that such a model should be implemented from the fiscal year of 1991. It is obvious that the statistical basis for this model and the statistical data used as criteria that generate funds must be relevant and reliable. This, of course, has intensified the interest in library statistics in the libraries, but it also means that the value of the traditional statistics has been questioned.

Therefore, too, we must be prepared to reevaluate our library statistics and try to adapt it to a more varied approach to library services and library output.

At the last meeting of ISO/TC 46/SC 8, (which is not a secret society, but the official code for the subcommittee responsible for statistics in the field of library and information), it was suggested that the committee should take up a new work item labelled "Library Performance Indicators", in order that the feasibility of applying a standard to the measuring of library output and efficiency might be explored. There was, I understand, some doubt as to whether this would fall within the scope of the subcommittee, but I have promised to submit a formal proposal, subsequently to be considered according to the ISO rules. But before doing so I shall, of course, be very much interested in having the opinion of the library community on the matter, which is hereby submitted to debate.

IFLA GENERAL CONFERENCE AND COUNCIL MEETING PARIS 1989

Division: MANAGEMENT AND TECHNOLOGY

Section/RT: AUDIOVISUAL MEDIA

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UP DATE ON VIDEOTECHNOLOGY IN LIBRARIES

by

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UP DATE ON VIDEOTECHNOLOGY IN LIBRARIES

ABSTRACT

Various new technologies are available for library use : optical memories (videodisc, CVD, CD-ROM, DON), digitization, videotransmission, mechanisation. How can we use theM in conserving , developing, and publicising collections of still and moving images ? Examples from French libraries.

UP DATE ON VIDEOTECHNOLOGY IN LIBRARIES

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The purpose of this paper is not to summarise the vast amount of literature devoted to new information technology, but to pull together the possibilities that become apparent for libraries with audiovisual collections.

On the one hand we will cover the main factors in the development of storage and transmission of still and moving pictures - optical memories, digitization, , videotransmission and mechanisation.

On the other hand, using exemples of already existing projects in France, we will consider possible methods for conserving, developping and presenting audiovisual collections in libraries.

1 - EVOLUTIONARY FACTORS

Let us remember that the general context is that of the simultaneous development of both video and information science techniques. Lower prices are at one and the same time a cause and a result of an increasingly growing public market.

1.1 New storage aids : optical memories

greatly aided the progress of optics and information science both from the performance point of view and in terms of lower costs.

Because of its precision, the laser beam allows the recording of an enormous amount of information on the surface of a disc, and the retrieval of this information with certainty and speed. The optical disc - carrying a larger capacity - thus takes into account an ever larger appetite for recording information. Data are no longer represented on the surface of a disc through the continual variation of its composing elements (analogue system) , but are sampled and coded according to a binary (digital) system. The variations in a groove are replaced by a succession of 0 's and 1's. The final advantage is that the tracking of a disc using a laser beam does not wear down the disc's surface.

Thus, as far as sound is concerned, black disc has been supplanted by the small compact disc, which has longer recording time, excellent sound, is not worn down through use, and allows access to particular tracks.

What is the situation for pictures ?

The family of optical memories is rich in experimentation, and also in struggles, alliance and rejections. The invested capital is considerable : it represents the market for domestic and office electronics, and video publication.

Because of its large capacity, the analogue videodisc Laservision has been adopted for the publication of audiovisual programmes, or the creation of large picture data banks . (30' or 60' of moving pictures, or 54 000 photographs per side.) The user can be taken straight to a particular picture, or sequence of pictures through the use of a simple remote control, or through a data processing system, local or distant. For these reasons, the videodisc in France has found its way into institutions with large picture libraries. However, the exact representation and the speed of retrieval of the image allow other training programmes, games, ...

To tap the public market, the videodisc was reissued in 1988 as the CVD (Compact Video Disc, of 12, 20, or 30 cmm. diameter). The same player can accept CVD and CD audio. They are, however, mainly used in the musical field.

CD.ROM (Compact Disc Read Only Memory) can be used where a combination of photographs, text and information data is needed. The necessary equipment (reader and PC) rather orientates it towards institutional and professional applications and always within the publishing context.

Conversely, the D.O.N. (Optical Digital Disc) is an institutional science information tool, allowing the storage of stills. It can be recorded upon, allowing immediate use. The quality of the picture can be improved beyond current video standards.

1.2 Development of video communications

This comprises all the technology and services used by both television and telecommunications. Indeed cable, fibre optics, hertzian waves, satellites, are all used for standard television transmission as well as communications services between consumers. Thus the boundary between these two activities tends to become more blurred as new types of services offer greater inter-activity between the TV screen and the viewer, and an increase in services is proposed for the telecommunications user.

About television

We are seeing a considerable increase in the quantity of available pictures. Although hertzian space has become saturated by the generalist, national channels, new methods have widened our means of communication.

By means of satellite, trough personal or collective aerials, users have access to dozens of channels.

Thanks to cable networks ,connecting within a town a network centre and its subscribers , 15 or 30 channels become available.

For the managment of network centres, **mechanised loaders** have been developed to allow automatic control in planning the transmission of all the units of each channel.

On the other hand, the importance of the number of channels and the contact between the user and the network centre allow new methods in interactive transmission. The minimum state is " democracy" in choice of programmes, using a system whereby consumers are asked to select between possible titles and vote upon them. The far end is a concept of ***télévideothèque*** (remote video library), i.e. a choice by the user from a permanently available collection, which would be transmitted on a channel and at a time retained by that network center.

Finally, in time, the transmission of a series of still pictures, at 25 images per second, could be possible for those consumers possessing televisions with image memory.

This increase in choice means at the same time a change in the quality of the offered programmes. Though he watches TV longer than before, a viewer can only use his set for a certain period of time, thus the choices are presented within a very competitive atmosphere.

Hence specialised channels dealing in certain subject matters, or directed at a particuliar clientele (youth, music, cinema, sport, ...).

Conversely, seeking out a wider cross-section of the public : transmission by satellite across boundaries.

There is also the question of financial sources other than licence fees : advertising, subscription, Pay Per View. This personalised usage is possible through cable and by scrambling channels.

At the other end of the spectrum, in the industrial field, we see a movement towards High Resolution TV, where the Japanese and the Europeans come into conflict.

Finally, let us not forget the huge increase in the use of domestic video recorder, which allow consumers the choice of when they watch their desired programmes. Also, they are able to use commercially produced VHS Cassettes in their machines.

Telecommunications

Far beyond the mere telephone which allows two people to talk to each other, telecommunication services have seen a large growth, thanks to the transmission capacity of the new technologies (cable, fibre optics, hertzian waves, satellite), thanks to the digitization of transmissible and controlling data and - in France - thanks to the willingness of a big company France Télécom. A striking example of the latter's work is the way *Minitel* (the French videotext terminals) has been introduced to the general public .

Where it is a question of transmitting moving pictures, one could establish videolinks, permanent or temporary, as those used in videoconferences.

The project of the " *Numeris* " network is to increase the capacity of the Telecommunications network to 64kbits and to thus enable consumers to exchange all types of data adapted to this flow, particularly still pictures.

A multiplicity of aids, a multiplicity in the choice of pictures, what are the implications of these developments for the library world ?

2 - VIDEO AND LIBRARIES

What services can new videotechnology offer to libraries ? And what are the French models ?

2.1 The conservation and valuation of primary collections

Where libraries act as archives for important collections of original pictures (photographs, films, prints), problems arise from the sheer numbers , the fragility , and the difficulty of doing a documentary research in these media. Reproduction of the original works onto another format is required. It may be that this reproduction serves as a mere locating exercise, a catalogue or illustrated database for professionals and researchers, or one could envisage a partial or total utilisation of the collection by the ultimate user, i.e. the general public. The reproduction of film onto videotape, photographic and microphotographic reproduction of still images have been common practice for a long time. But where still images are concerned, the capacity and performance of the new memories allow the creation of picture banks.

Thus, in 1981, the Bibliothèque Sainte Geneviève pioneered the reproduction of its collections of illuminated manuscripts onto a videodisc, and proposed highly adapted software to access the collection, using split screen techniques, whereby " boxes " of various pictures are presented and desired pictures are then selected from this matrix.

The DBMIST has followed this path by reproducing onto videodisc its collections of photographs on Mediterranean architecture, medicine, and the drawings of the *Vélins du Roi* in the Museum of Natural History.

In a cooperative venture, the libraries of the Rhône-Alpes region have libraries' and museums' picture collections .

The French National Archives have produced an experimental videodisc on heraldic seals.

The Albert Kahn collection has reproduced its first coloured photographs onto high resolution vidodisc.

The Musée d'Orsay has chosen DON to reproduce its works in high resolution in compliance with the request of art historians.

Finally, the Bibliothèque Nationale produced a videodisc in 1989 containing collections from the Cabinet des Estampes et de la Photographie, which covers the French Revolution of 1789.

Vast memory banks of pictures have thus been created and can be used as part of an information retrieval system.

Nevertheless, these institutions also have to address a less specialized or less equipped public , thus the discs are accompanied by a printed book of descriptions and numbers giving access to the pictures via a remote control unit (1789, *Les Vélins du Roi*) .

2 . 2 The acquisition of collections by other libraries

In France, the choice of available optical memories is still fairly limited. The catalogues of films available on videodisc are in English, Japanese or German. Nevertheless, under the label of CVD, one can obtain musical programmes : operas, shows, musical accompaniments.

The acquisition of these videos poses two problems.

Consultation within the library : the question of performance rights needs resolution. The difficulty lies in the wide dispersion of the rights.

Loans : the question of the appropriate equipment on which CDVs can be used. We will need to monitor the growth in home sales of the equipment before loan collections can be established.

However, material from institutions can be interesting and libraries banks.

2.3 Publicising audiovisual collections

Apart from the reproduction of original collections and the acquisition of new publishing aids, the new video techology can also be used as a mean of making the collections available to the public.

Collections of films on 3/4' video have been existing for about ten years in a network of about 100 public libraries, mostly using a system of on the spot manual loading or through a broadcasting centre.

Innovations in the audiovisual communications field are on 3 planes : use of optical memories, mechanisation, long distance transmission

Within the library

We have already mentioned libraries acting as publishers of their collections. It is primarily within their own rooms that their videodiscs are used : videodiscs on medicine and archeology in university libraries; videodisc on illuminated manuscripts at the Bibliothèque Sainte Geneviève; 1789 at the Bibliothèque Nationale.

But optical memories can also be chosen as a promotion aid by libraries that have bought the rights of to reproduce particular collections.

Thus the Bibliothèque Publique d'Information has reproduced its encyclopedic collection of 136 000 slides onto 3 sides of videodisc. Whether the videodisc be used by a simple remote control accompanied by booklets with descriptions, or operated by a retrieval system adapted both to the collection and the library user, the ease and attractiveness of this new communication method has resulted in an increase in usage of the still picture collection.

Again, it is the videodisc that has been chosen as the method of and still pictures), and the Institut du Monde Arabe (still pictures).

Mechanisation characterizes the large cultural depositories of the 1980 ' s, which are seen as models for technological realisations.

The Vidéothèque de Paris has collected 2 000 films on Paris. The client selects his programme at a terminal, a mechanical arm finds and loads the corresponding cassette (3/4'UMATIC).

At the Institut du Monde Arabe, collections of still, moving pictures and sound may be consulted at one and the same terminal. I.M.A. has chosen videodisc for its stills, and 8mm videotape for both sound and moving image.

Outside the library

We have already mentionned the problem of home loans of CVD, held back owing to lack of home ownership of the correct equipment.

Touching on the teletransmission of stills, two possibilities are envisaged.

The library itself could act as the transmitting agency, serving those subscribers to the *Réseau Numérique à Intégration de Services* equipped with appropriate terminals.

All, or part, of the collection could be available at the network centre of a cabled town, and offered to subscribers owning TV sets with image memory.

For the moving picture, only the possibility of cable is foreseen, the R.N.I.S. beeing unable to provide 25 images per second (unless great progress is seen in data compression and decompression of the pictures). However, one can foresee that library collections become partly or wholly available in a *télévidéothèque* , *to* which access is provided through subscription to a cable network.

IN CONCLUSION

Audiovisual services have taken a considerable place in training, information and culture. Following this development, libraries have become multi-media oriented. Will they now become database hosts, particularly for pictures and sound ?

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COPYRIGHT IN AUDIOVISUAL MATERIALS

Paul T McNally

Abstract

The nature of copyright particularly in relation to audiovisual materials is considered and its influence on the ability of libraries to meet the needs of users. Recent reforms in Australian copyright law as they relate to audiovisual materials are detailed and compared with situations in some other countries.

COPYRIGHT IN AUDIOVISUAL MATERIALS

The concept of copyright, giving an author the right to control the publication of his or her intellectual creations, is not a particularly new one. In the United Kingdom copyright developed from the common law of property and was codified in the first Copyright Act of 1711.

Australian copyright law derives directly from the British law and, in fact, Australia's Copyright Act of 1911 was virtually the same as the British one. Copyright in Australia is now based only upon statute and copyright subsists only by virtue of the Copyright Act of 1968, the Designs Act or the prerogative of the Crown.

Copyright is a right to a particular type of property, namely intellectual property - that which is created as a result of intellectual activity. Copyright acknowledges that a work produced by an author, whether in written, visual, sound or other permanent format, is that author's property and use by any other person is contingent upon the author's permission being granted. Modern copyright law is intended, amongst other things, to ensure remuneration to authors and publishers for their efforts, to encourage the production of literary and other works by securing an adequate reward for those responsible for their creation, to ensure the integrity of a work is maintained when a whole or a part of it is reproduced and to ensure that correct authorship is attributed to a work or sections of it.

Most countries now have copyright legislation in place and a number of international conventions provide the bases for the provisions in many copyright laws. The Berne Convention for the Protection of Literary and Artistic Works, first signed in 1886 and last revised in 1971, is observed by about eighty countries, including Australia. This Convention requires a signatory country to grant works originating in other member nations the same degree of copyright protection as works originating from it. The Convention sets minimum standards of protection which must be granted without formal application. This convention is administered by the World Intellectual Property Organisation.

A second convention is the Universal Copyright Convention first established in 1952 and like the Berne Convention revised in 1971. About eighty countries are signatories to this convention. The minimum standards for protection are less restrictive than those provided for in the Berne Convention.

The third agreement is the International Convention for the Protection of Performers, Producers of Phonograms and Broadcasting Organisations, otherwise referred to as the Rome Convention. Recent amendments to the Australian Copyright Act will enable it to accede to the Rome Convention.

As the range of audiovisual materials has extended and relatively inexpensive and easy to operate equipment has become available for the recording and reproduction of video and sound recordings and broadcasts and other audiovisual materials, provisions in copyright laws protecting the rights of copyright owners and specifying exceptions to those rights granted to users have become out of date. The result has been confusion on the part of users, particularly libraries, as to what rights they have in making use of audiovisual materials. Griffith (1984:216) succinctly sums up the problem. "The law and the policies which underlie it have not kept pace with the technology and the way it is being used, and the rights and interests of copyright owners and consumers are not being protected."

Take the case of a library which collects video recordings and has available within the library an electronic distribution system which allows a number of users in different parts of the library to view video recordings played at a central point. Is such dissemination within the library legal or not? What about the library in an educational institution requested by one of the teaching staff to record a television broadcast for later use in a lesson? The broadcast is occurring at night and recordings of it are not available for purchase. Can the library legally make such a recording? These are but two simple instances which demonstrate the difficulties libraries face in applying existing copyright legislation to contemporary uses of video and other audiovisual technology.

Widespread interest amongst Australian librarians in the provisions of the Copyright Act as they apply to audiovisual materials dates from the mid-1970s. It is fair to say that prior to that period most librarians had little understanding of copyright law as it applies to audiovisual materials and of the restrictions it places on the use of those materials. Nor was there really any particular need for them to have a deep understanding of it. Audiovisual materials were simply purchased, organised and provided for use. Sometimes individual users were permitted to operate the equipment necessary to make use of the materials, but often its operation was restricted to members of the library staff.

The advent of cassette recorders providing an easy means of copying gramophone records onto cassettes and the development of video recorders, first in open reel formats and then in cassette formats, led to the implementation of new practices in libraries in respect of audiovisual collections and services. There was an increasing awareness amongst Australian librarians and library users of the importance of audiovisual materials as information resources. Because they wanted to respond to the needs of users for audiovisual resources, libraries developed practices such as recording radio and television broadcasts for use at times more convenient to users, transferring from gramophone records to sound cassettes and from motion pictures and open reel video recordings to video cassettes, and multiple copying of sound cassettes to allow simultaneous use of a particular recording by many users. Although such practices were apparently widespread, by and large they were generally illegal in terms of the Australian Copyright Act. From my observations in libraries in other countries, I believe that such practices were also widespread in those countries.

As copyright owners in Australia became aware of the ways in which libraries were failing to observe the restrictions of the Copyright Act, legal challenges took place. When they realised that some of the ways in which they were dealing with audiovisual materials were not sanctioned by the Copyright Act, librarians, to their credit, ceased such practices and sought instead to have the legislation amended.

In early 1977 I was requested to prepare a paper on copyright in audiovisual materials for the Australian Advisory Council on Bibliographical Services Sub-Committee on Copyright in Audiovisual Materials. This paper was later expanded and re-worked as a result of feed-back provided by many librarians who read it. Eventually it formed the basis for the submission made by the Library Association of Australia to the Attorney General of Australia for reform of the Copyright Act. Cornelius (1983) is an excellent source of information on the processes used to identify reforms required in the Copyright Act as it relates to audiovisual materials.

The following principles are the basis for the reforms sought by Australians librarians (McNally 1978:315)

> Libraries have a responsibility to acquire, store and preserve those records which are relevant to the historical, cultural and educational needs of the nation.
>
> Libraries have a responsibility to provide the information needs of users promptly and with reasonable convenience.
>
> Audiovisual materials form an integral part of the total network of information sources and as such are an important part of the resources of libraries.
>
> Because of their nature, some audiovisual materials cannot be effectively utilised using methods traditionally associated with printed media. Most require the use of specially designed equipment. Some types designed for mass use require modification for individual use while some intended for individual use must be modified for group use.
>
> Limitations placed on the use of modern technology for copying audiovisual materials in order to protect the copyright subsisting in those materials should not be so restrictive as to prevent reasonable access to the materials for the purposes of study, research or use in teaching.
>
> Those individuals and organisations in whom the copyright of particular audiovisual materials is vested have a right to receive a fair and reasonable recompense for copying of the materials.

Amendments have been made to the Copyright Act on several occasions in the last few years, the last in May this year. Gradually reforms sought by librarians have been granted.

What are the principal provisions in the Australian Copyright Act relating to audiovisual materials? As this session is basically concerned with video recordings, most of my comments will refer to that medium.

The Australian Copyright Act is divided into twelve parts. The major ones are Part III and IV. Part III, "Copyright in Original Literary, Dramatic, Musical and Artistic Works" refers in part to some types of audiovisual materials, including film strips, overhead transparencies, photographs and slides. Computer programs are also included in this section as they are categorised as "literary works". Part IV, "Copyright in Subject-Matter other than Works" refers to motion pictures, sound recordings in any format including tapes and discs, video recordings in any format including open reels, cassettes and video discs, radio broadcasts and television broadcasts. For the purpose of this paper I shall restrict my comments to materials covered by subject-matter other than works."

The copyright owner of a sound recording is granted the exclusive rights to copy the recording, play it "in public" or broadcast it. Somewhat similarly the owner of copyright in a video recording or motion picture has the exclusive right to make a copy of it, show it in public, broadcast it and transmit it by a diffusion service. Copyright owners in television and sound broadcasts have the exclusive right to make a video recording of a television broadcast, a sound recording of either a radio or television broadcast and to re-broadcast the broadcast. In general terms, copyright continues for fifty years from the date of first publication or broadcast.

Libraries are permitted to make a recording of a sound recording, video recording or film which was made more than fifty years ago and which has not yet been published, for the purpose of research or study. They are also permitted to make a recording of a sound recording, video recording or film which is part of the library's collection for the purpose of preservation or replacement in the event of damage, deterioration or loss. When such copies are made, records as specified in the Act, must be made and retained.

An important provision in the amendments to the Act passed in May 1989 is that the libraries of educational institutions will be able to record television and radio broadcasts under a statutory licence scheme which is to be introduced. The scheme will allow educational institutions and their libraries to copy for educational purposes any programme without infringing broadcast copyright, or the copyright in any other subject-matter included in the broadcast. Copyright owners will be required to establish a single collecting society approved by the Attorney General and institutions wishing to participate in the scheme will pay for copying either by way of a levy for each student or by keeping full records of copies made and making payments to the society for actual copying done. This is a very important step forward for the libraries of educational institutions and will greatly assist them in making available to their users video materials which have been broadcast, but which are not available as commercial recordings. Preview copies may be made for assessment by a teacher but they will not be subject to payment unless they are retained for educational use. The scheme also allows additional copies to be made of a copy of a broadcast but it does not permit copying of video recordings which have been purchased by the library. These provisions unfortunately do not apply to public libraries.

Section 111 of the Act allows a person to record a television or radio broadcast for private and domestic use only. Such recordings cannot be included in library collections or lent to library users.

Another recent amendment to the Copyright Act provides for a blank tape royalty scheme which will allow home taping of published sound recordings. The royalty will be payable by manufacturers and importers of blank audio tapes to the copyright owners' collecting society currently being formed. This provision does not apply to video tapes.

The Act provides for institutions which assist intellectually handicapped persons, including the libraries of those institutions, to make a copy of the whole or part of a sound or video recording or broadcast for the sole purpose of use in assisting intellectually handicapped persons. Such copies can only be made if a new copy cannot be obtained in a reasonable time at an ordinary commercial price and if a detailed record is made and owners of copyright and items copied under this provision may claim remuneration from the organisation which did the copying.

In 1986 amendments to the Act provided for fair dealing or fair use as it is called in some countries with audiovisual items, including sound or video recordings or broadcasts for the purposes of review or reporting news, but not for study or research. An amendment in May 1989 extended the provision of fair dealing or fair use of audiovisual items for purposes of research or study. The fair dealing situation is now the same for both printed materials and audiovisual items.

There is no doubt we have come a long way in reforming the copyright law to take into account contemporary use of audiovisual materials. However, there is still much to be achieved.

There is still no provision for libraries to copy audiovisual items for library users or for inter-library loan as can be done in the case of printed works. The provisions for recording radio and television broadcasts relate only to libraries of educational institutions and not to public libraries and archives. The right of libraries to transmit sound or video recordings to users within the library, or to play such items to a group within the library is not specified. These are issues on which we must continue to make representations to the Attorney General for change.

The situation in most other countries is not markedly dissimilar from that in Australia. In the United States the Copyright Revision Act of 1976 (Public Law 94-553) sets out the rights of copyright owners in respect of reproduction, adaptation, distribution, public performance and public display of works, including audiovisual items. Copyright owners' rights are subject to the fair use provisions of Section 107 which specifies that fair use for purposes such as "criticism, comment, news reporting, teaching (including multiple copies for classroom use), scholarship, or research, is not an infringement of copyright." Factors to be considered in determining what is fair use are specified. Stanek (1986) provides an extensive review of the US copyright legislation as it affects video recordings.

An interesting development which occurred subsequent to the passage of the US legislation was the preparation by a committee consisting of representatives of most relevant organisations of guidelines for off-air recording of broadcasts. Basically the guidelines attempt to cope with the problem of "time shift", the need the record broadcasts in order to use them at a more convenient time during the teaching programme.

While the guidelines have no specific legal standing Bender (1985:103) reports that "most legal copyright authorities have taken the position that the guidelines would be taken seriously by a court faced with a claim of infringement based upon off-air taping for educational purposes." The guidelines provide for recordings of broadcasts to be retained for forty-five days, during the first ten days of which they may be used for teaching and other instruction related uses and for the remaining period only for teacher evaluation purposes.

A somewhat similar situation is provided for in Denmark. Copyright legislation permits educational institutions to make recordings of broadcasts for retention for a limited period only. In Norway, recordings of radio and television broadcasts can be made by educational institutions for educational purposes. In Sweden, except for private use, recordings of broadcasts are not permitted. Johansen (1985) reviews in detail provisions made in the copyright laws of Scandinavian countries for libraries to handle video recordings.

In preparing this paper I was struck by the similarity of the problems libraries in most countries are experiencing in relation to audiovisual materials and copyright. There is a need for an international survey of copyright practices relating to audiovisual materials, the results of which would provide a firm basis for discussions in most countries where copyright laws are being developed or amended. This is a project that could well be undertaken by IFLA.

The work done by IASA (1986) in developing draft guidelines for archives and libraries in relation to sound recordings, points the way to another useful approach which could be taken on an international basis. It is interesting to note that those draft guidelines have in part been incorporated into guidelines currently being developed for archives and libraries in relation to sound and video recordings by the IFLA Round Table on Audiovisual Records. These guidelines, first published in draft form in March 1989, are based on general principles including those of fair dealing, copying for preservation purposes, providing for the proper exchange, distribution and transmission of materials in the collections of libraries, safeguarding the acquisition, preservation and use of video and sound recordings and providing a balance between the rights of copyright owners and the responsibilities and needs of archivists, librarians and their users.

Such guidelines developed by an internationally recognised organisation like IFLA, can help librarians in countries throughout the world address the basic issues concerning copyright and audiovisual materials. Furthermore, they can serve to identify ways in which copyright legislation should provide for the reasonable needs of libraries and users.

It is certainly difficult for legislators to ensure the laws they draft and enact will have currency over a long period of time, particularly, when as with audiovisual materials, they are concerned with a rapidly evolving technology. The situation we find in many countries is that the technology and the expectations of users of audiovisual materials have outstripped the ability of existing copyright laws to cope with them adequately. Copyright is an important concept which recognises the ownership by authors of their intellectual creations and their rights to influence use of those creations, while at the same time recognising the legitimate needs of users to have access to those works and of libraries to ensure their preservation. Linnemann (1987:4) sums the matter up in this way, "I'm sure that, when applied in a just and reasonable way, copyright can serve to fully balance the interests of both authors and those who preserve the authors' products for posterity."

IFLA GENERAL CONFERENCE AND COUNCIL MEETING PARIS 1989

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Values, Priorities and Resource Allocations in Libraries and Information Centers

By

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U.S.A.

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Values, Priorities and Resource Allocations in Libraries and Information Centers

By

M.E.L. Jacob

U.S.A.

Abstract:

Paper discusses the concepts of values, value-added information services, resource allocation, and priority setting. The role of planning, goals, modeling, and evaluation are briefly reviewed.

Among the most difficult challenges affecting a library or information center manager are the establishment of suitable priorities and the allocation of the necessary resources. In exploring this process several concepts or processes must be considered. Among these are value and value added-services, planning and goal setting, and measurement and evaluation.

Value-added services seem to be the catch word or fashionable phrase. Libraries are increasingly being asked to justify their budgets and even their very existence. It is no longer accepted in many places that libraries will supported because they are inherently good. Consequently it is essential that librarians and information center managers have a thorough understanding of values and their impact on their libraries and information centers.

Value-Added Services

There are differing values and value perceptions among librarians, institutional administrators and Boards, and differing groups and classes of users. The great diversity in values arises from different experiences, personal value systems, societal value systems, and a complex array of variables (figure 1). Our individual value system determines what value we will place on goods, services, products, and relationships and how we perceive them. Some aspects of this subjectivity are explored by James Anderson in Public Policy-Making, Robert S. Taylor in Value-Added Processes in Information Systems and by Bruce P. Schauer in The Economics of Managing Library Service, although Schauer talks in economists' terms of utility and restricts his discussion accordingly (1,2,3). Those interested a discussion from an economist's point of view on utility should refer to Schauer.

When discussing values in a global forum, the importance of different societal and cultural perspectives add an entirely new dimension. There are strongly differing views on concepts such as "free flow of information", "free information", "cultural imperialism", government information policies and funding, and differences in literacy levels and per capita income can have strong influences on how or even whether library and information services are valued and supported.

Taylor discussed many aspects of the Western view of the subjective nature of value as Jacob did in a recent article for Bottom Line (4). Taylor does not provide a single definition of values and instead provides a series depending on the context. For the purpose of this paper, however, the simple dictionary definition "the worth of property, goods, services" used by Jacob will be used here. The discussion in Taylor is far more extensive and those who read it will find it informative.

In considering value-added some aspects of traditional economics and cost accounting theory are useful in understanding the basic process. In manufacturing, one starts with raw materials which are transformed by labor, machines, and processing into finished goods or products which are then distributed, stored, and sold to the ultimate consumers. All these intermediate processes from the raw materials until the product is used by the ultimate consumer are defined as adding value to the raw materials and to the manufactured product (figure 2). It is the basis for European VAT (value added tax) which is levied as a product or good moves from one unit to another such as from a manufacturer to a wholesaler to a retailer to the consumer each of who would pay a value added tax on that portion of value added in the layer below.

A similar value addition parallel can be constructed for information products and services with the notable difference that information is not destroyed or worn out by consumption, but its value to the user may change. The value of information may be affected by its timeliness, location, ease of access, cost, form, or use restrictions. Some information ages quickly and is only of interest for a limited time, other information may increase in value as it ages. Weather information is most desired before the weather forecasted occurs. It retains some value for those looking at longer term weather patterns, but for most us yesterday's weather is of little interest. Once known, the original user may find the value of the information may decrease or increase as it is applied. Its value to others may be greater than to the person who already has it.

Once you know a fact, you have no need to pay again to acquire the same fact unless it is an easier to use form, packaged more conveniently, or is inseparable from other desired information. The cost of information may also affect its value to the user. If it is more costly to acquire than the loss or risk of not having it, the user may decide the information is not sufficiently valuable to buy. A book on strategic planning at $35 is more likely to be purchased than one at $100.

Restrictions on the ability to copy, to re-use, or transmit information to others may diminish its usefulness and consequently its value. For some, restricted access to information may enhance its value. If you can acquire it, but your competitor can not, it may provide you an advantage. This is illustrated by the exclusive licensing and contractual agreements for celebrity endorsements. At present Pepsi and Coca Cola are paying exorbitant fees to celebrities to advertise their products. Pop singer Madonna has reportedly just signed a $10,000,000 contract with Pepsi.

Taylor's model (figure 3) is interesting in a number of ways. It treats data as the raw material and its transformation into action processed through several stages. The main point that should be added about information is that action is not always immediate. Some information is sought to satisfy a current problem, but other information may not have immediate application and may lie dormant for some time until a problem or context arises in which it can be applied or lead to action.

Taylor's model and his ensuing discussion are particularly interesting because he focuses on the process of transforming data into information and thence to action. Publishers add value by selecting material to publish, by editing and enhancing those materials, by packaging them into books and journals, by warehousing, distributing, advertising, and selling the finished products to libraries, bookstores, and readers (figure 4). Libraries add value by selecting materials, cataloging, storing them, enhancing access to them, retrieving them, lending them, recording and tracking use, and maintaining them to list a few aspects of library service (figure 5).

Each time information is processed to improve access to it, to enhance its usability in format or content, to bring it to a new audience, to relate it to other information, to lower its cost, or to change it in some way that the user perceives as important is to add value to that information. In the United States, federal government information, depending on the type and distribution restrictions, can be purchased from the U.S. Government Printing Office, the National Technical Information Service, directly from individual government agencies, or from a number of commercial firms. The latter choice is usually because of the re-packaging or enhanced access offered by the vendor. OCLC is re-packaging the ERIC and Agricola data bases and combining them with OCLC bibliographic records to provide a more comprehensive tool for reference use.

Planning

Priority setting can not be done without a clear vision of what a library's role is and what the user community's perceptions of the relative values of the various actions and functions required to attain that vision are. More libraries are using strategic planning as a means of establishing such a vision and its associated priorities. Within the OCLC community of libraries a 1987 survey encompassing some 3000 institutions indicated that 33% have and use planning processes (6). Some have used the planning process to maintain present resources or acquire new resources. Others have been forced to use planning as means of managing with reduced resources.

Several works are available on strategic planning for libraries, in addition to the OCLC work listed above are Rings, Koenig, and McClure (8,9,10). These cover mission definition and goal setting.

Later in this workshop others will describe some of the various commercially available decision support tools and packages that can be used in managing libraries. A conceptual model that was developed by Jacob in 1982 is useful in considering and assessing the various alternatives in using and allocating resources (7). The concept behind the model was to look at a library's budget from two different perspectives: from a goal and activity driven model and from a resource driven model. Figure 6 shows the two different perspectives. Given certain parameters for library processing and productivity, using a desired set of activity levels, i.e. number of books processed, number of circulation transactions, a manager can calculate the budget level and staff resources needed. Alternatively, given a certain resource level, the manager can determine what activity levels will result. With either view, parameters can be varied and the impact of these changes on services, activity levels, staffing, and funding can be assessed and the most appropriate combination can be selected. A model does not make decisions, it merely allows the manager to better assess the potential impact of possible decisions and alter priorities as needed.

Models make some important assumptions. While these would vary with the particular model and its parameters, some typical ones might include the productivity rate of various library staff, the amount of materials to be acquired, the complexity of the work involved, peak work loads. The degree to which such assumptions are realistic will affect the success of the model in representing library functions and its usefulness in assessing alternatives and helping in evaluating various different priorities.

Measurement And Evaluation

Essential to the success management of the library and its priorities is the process of measuring and monitoring what actually takes place. Data obtained is used to validate or refine any models. Can an additional 1000 titles/year be processed with one added staff member? Can circulation queues be kept at no more than 5 people during peak usage? Deciding on appropriate measures and using them is critical to the successful operation of the library. Recent presentations at the Statistics Section program have been devoted to this topic (11,12) and a growing body of literature is being written on performance measurement.

While an more libraries are planning, the OCLC survey did not support that all of them are using measurement and evaluation techniques to monitor and manage the progress on planning activities. Without this controlling feedback, planning is an empty process.

Conclusion

To successfully manage a library, a manager must know and work with the value system of the community served, must have developed an acceptable set of goals and a reasonable and realistic means of achieving those goals, acquire or allocate the necessary resources to achieve those goals, and finally monitor progress on achieving those goals and adjust the plans and resources as needed. Setting priorities is an iterative process that must be continually refined. Librarians are increasingly aware of new techniques and tools and are using them to better manage libraries.

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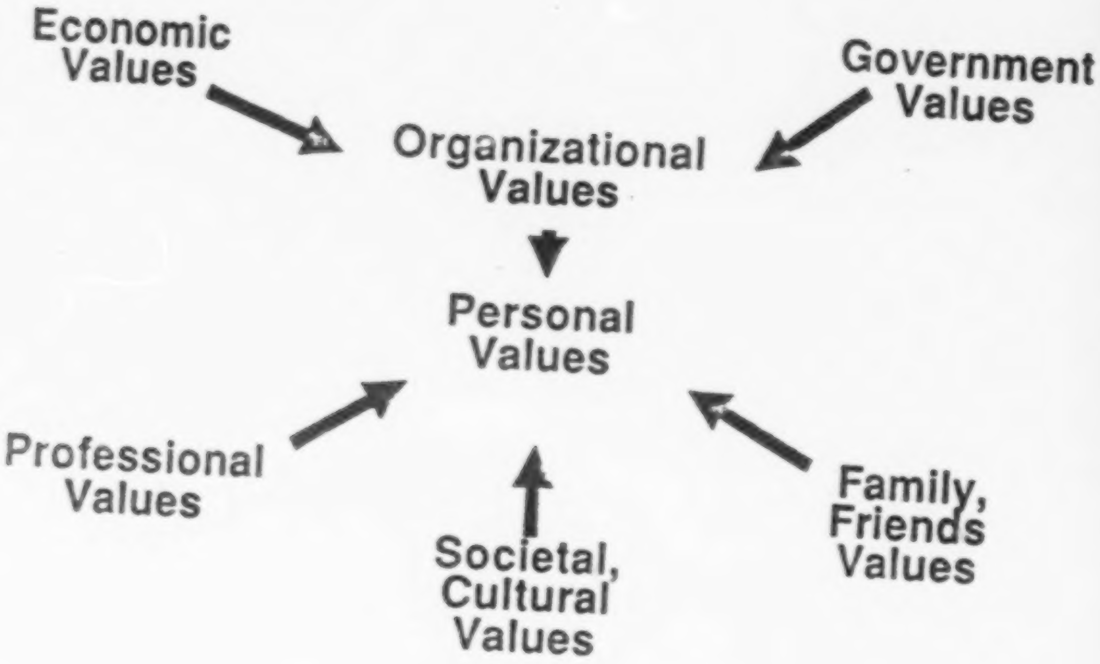


Figure 1

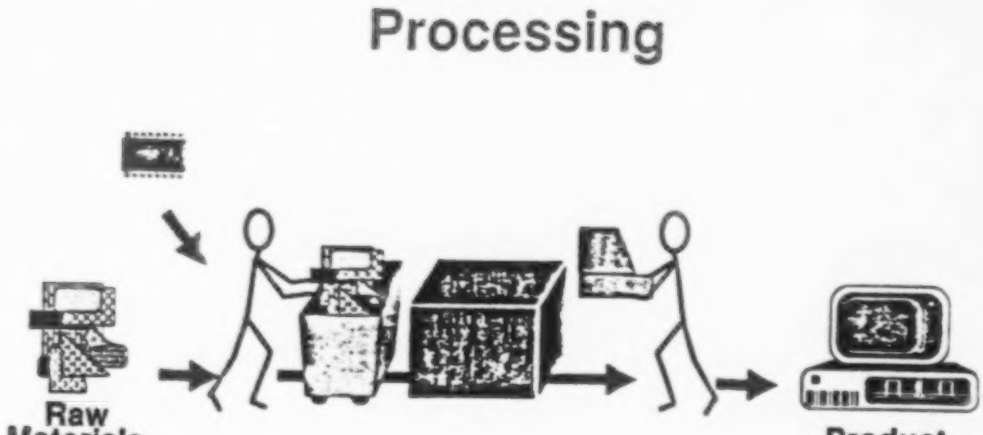
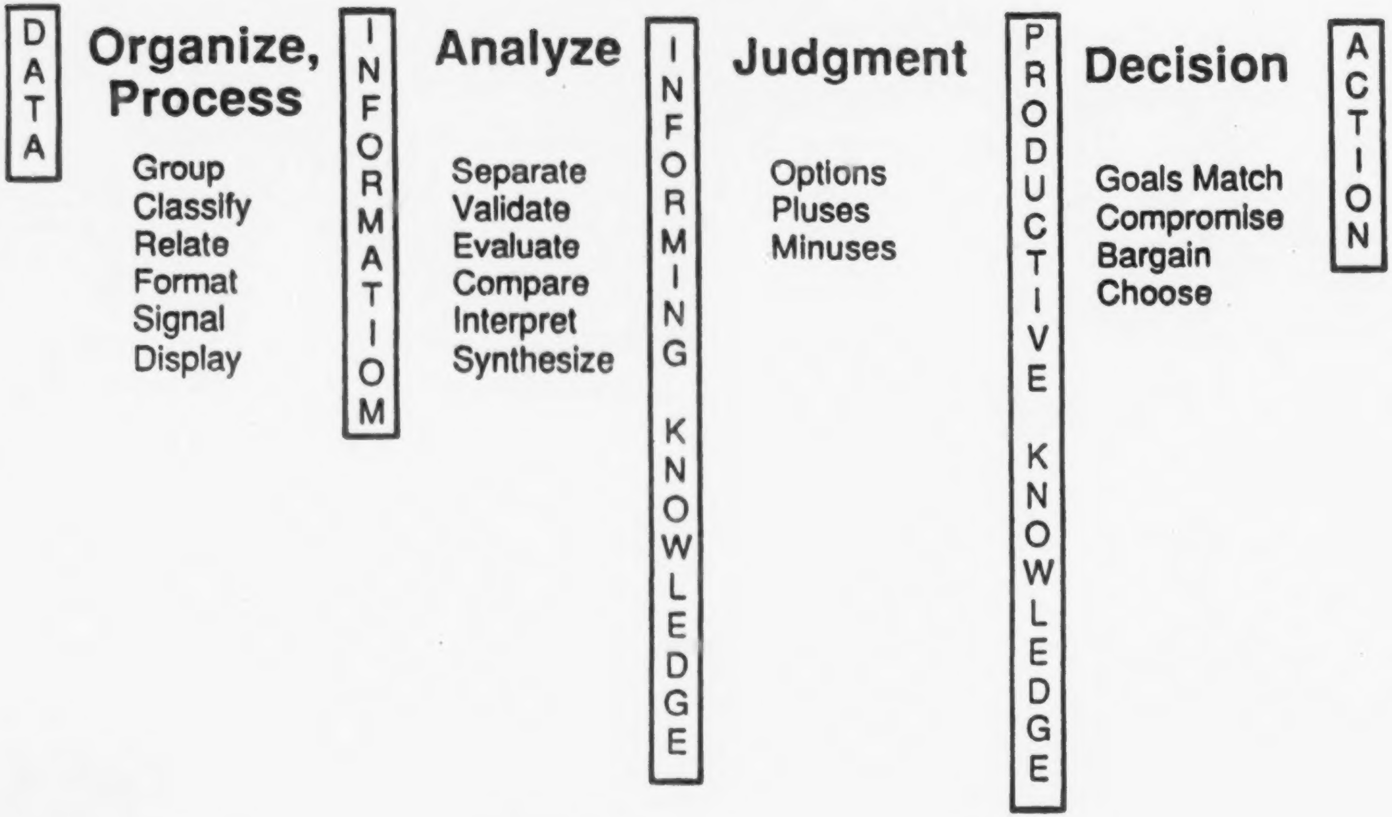


Figure 2



DATA

Organize, Process

- Group
- Classify
- Relate
- Format
- Signal
- Display

INFORMATIOM

Analyze

- Separate
- Validate
- Evaluate
- Compare
- Interpret
- Synthesize

INFORMING KNOWLEDGE

Judgment

- Options
- Pluses
- Minuses

PRODUCTIVE KNOWLEDGE

Decision

- Goals Match
- Compromise
- Bargain
- Choose

ACTION

Robert S. Taylor's Value Added Spectrum

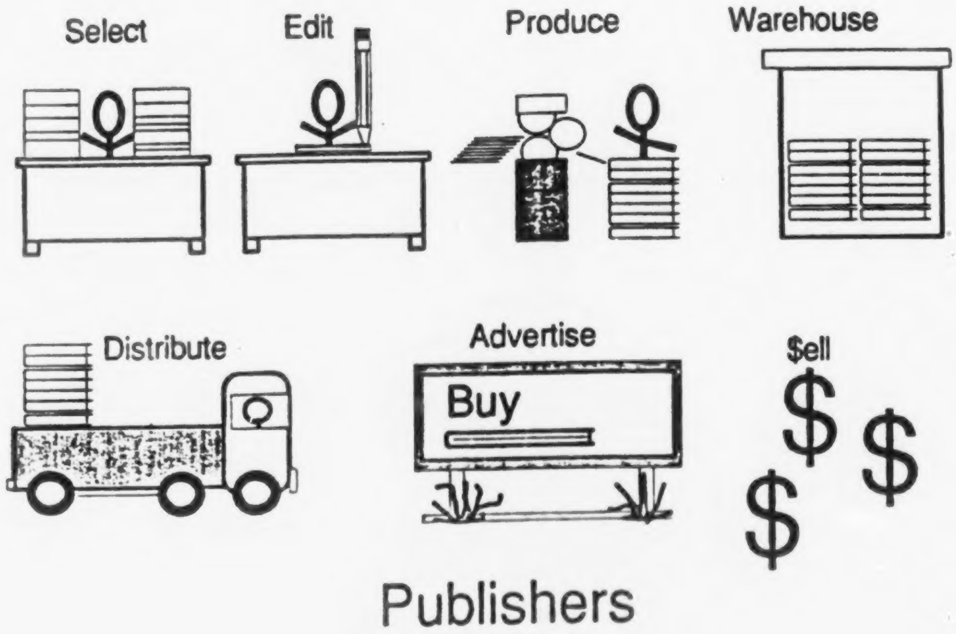


Figure 4

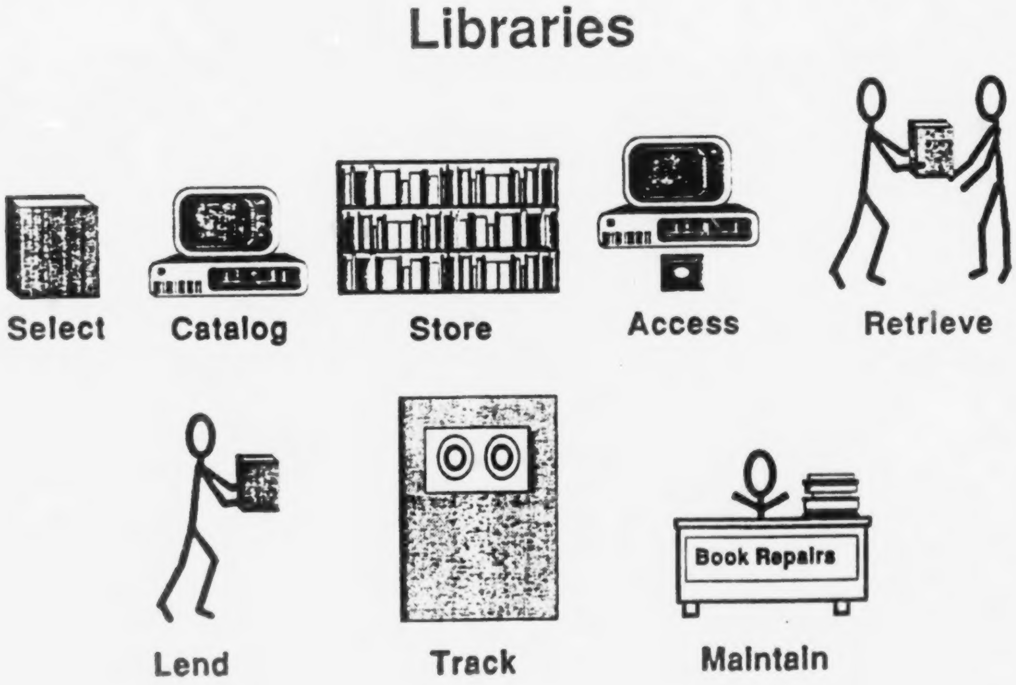


Figure 5

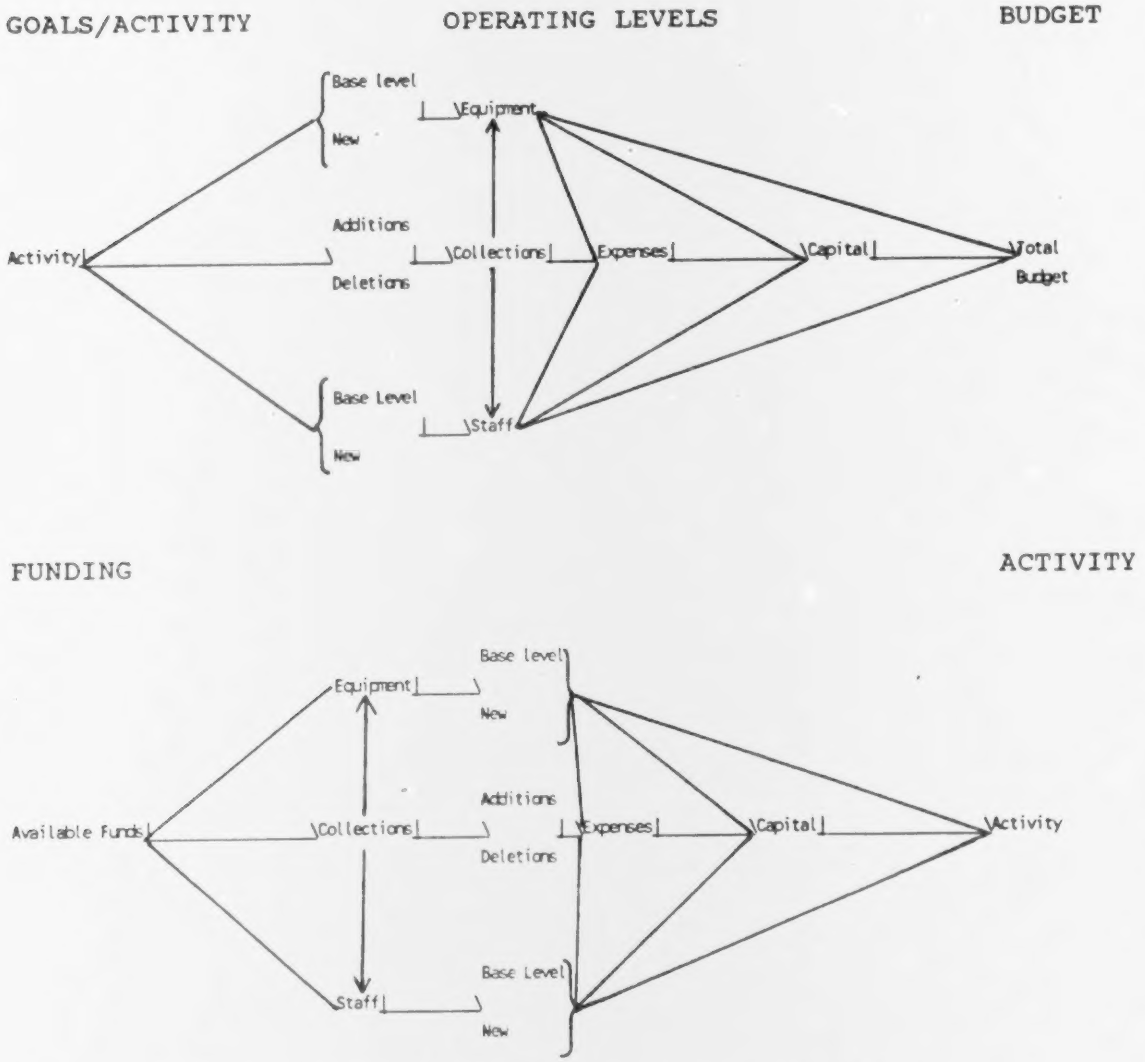


Figure 6 Simplified Model of Activity/Budget

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STATISTICS, MANAGEMENT, AND AUTOMATION

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IR 053 262

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INTRODUCTION

If the truth were known very few librarians have a great interest in statistics as statistics. It is not what statistics are but what they can do that is of interest. We, like Humptey Dumptey in Alice in Wonderland, know who is to be the master. Statistics are tools and, therefore, are very important to management in describing, planning, decision making, and in presentation. Now with the development of automation, and most particularly the microcomputer and its software, it is both easier to get at the numbers and to use numbers in a more sophisticated manner than we have been inclined to do in the past. This paper will examine the types of library statistics that are and should be collected, then management needs of statistics, and finally how the automation can enhance our ability to be more effective when dealing with management statistics.

STATISTICS

The statistics that a library collects are defined both externally and internally. Agencies at the local, regional, and national level expect certain statistical data so that they can compare institutions when considering funding. Internal data may be collected that is not needed by external sources but which helps in the decision making processes within the library. Regardless of the reasons for the need or use, library statistics appear to cluster into five categories;

1). Measures of Activity and Workload: These are the statistics that reflect what is happening in a library. What does the staff do? The processing activities. How many books have circulated? Other examples are: reference questions asked, volumes added, titles cataloged, and journals bound.

2). Measures of Holdings: These are the statistics that reflect the size and growth of the library collections. What does the library own? How large is the collection? How many items owned in sub-categories of the collection: volumes, titles, journals, microforms?

3) Measures of Patron Use: These are the statistics that measure the activity of the patrons. Is anybody using the library? How many people enter the library? The turnstile count. How many people are using study tables?

4). Measures of Resources Generated and Expended: These are the statistics that measure the cost. What is the money going for, salaries, operations, collections?

5). Patron Measures: In the last decade there has been an increased concern in both defining the client demographically and quantifying user satisfaction. These statistics provide a greater detail of information about the user population than just patrons by the number of uses of the collections and facilities of the library.

STATISTICS AND MANAGEMENT

Having collected the data how are they used for management?

1). Internal Use of Management Statistics. The most important use of statistical data is for internal description, decision making, funding, and planning.

a). Description: One of the most basic reasons for collecting statistics is to describe the library in quantitative terms, the annual report. By comparing data over time it is possible to determine if there have been trends in the library. Is circulation increasing? At what rate is the collection growing?

b). Decision Making: In this situation statistics contribute to how decisions are made. Most frequently the decisions relate to the allocation of funds. A unit receives more student assistant wages because of an increase in hours that the unit is opened.

c). Funding: In this most important situation statistics are used to illustrate why funds are needed. Per unit cost developed from the internal data will be used to illustrate the value of the library. Also the both temporal and spatial comparisons will be made. What changes have occurred over time within the library? How does the library compare with other libraries in relationship to expenditures and volumes added?

d). Planning: In this situation qualitative data are used to determine how to plan for the future. How will resources be allocated or reallocated if there is a fifty percent increase in the use of the collections in the next five years?

2). External Use of Management Statistics: The use of management statistics externally tends to be used descriptively or for funding.

a). Descriptive: Statistics are gathered by an outside agency using an established set of definitions which the library must adhere to when reporting its data. The use of this data is almost always used to supply comparative information to all the contributors.

b). Funding: Data is collected from a group of libraries within a political zone (county, state) to be used to allocate funds through a formula-based plan.

AUTOMATION:

What has the new technology provided to the manager who wishes to use statistics for decision making and planning? There is no doubt that computers, especially the microcomputer is making statistical operations easier through the speed of the machinery as well as the software. In the United States, the spreedsheet software VisiCalc did more to move the microcomputer out of the world of word processing and into the domain of management than any other event in the microcomputer revolution. It is not just the microcomputer revolution that is important to the collection and use of statistics in libraries. Library automated systems have created easily accessible databases for the library manager. Returning to the basic types of statistics how has the new technologies enhanced the collection of statistics for management?

1). Measures of Activity and Workload: These areas have been the first to benefit as they were the first to automation. Online circulation systems and national bibliographic databases are but two of the most common sources for these statistics.

2). Measures of Holdings: While this data is not as readily available within a mainframe context, selected data can be downloaded to a microcomputer. It is possible for a Physics librarian to find out the Physics journal holdings holdings by downloading that particular segment of data from the online catalog.

3). Measures of Patron Use: Along with the two proceeding categories these data are particularly easy to work with in a microcomputer environment.

4). Measures of Resources Generated and Expended: With the automation of the agencies that allocate monies to libraries these data are readily available through mainframe systems. In addition these data are prime candidates for use with microcomputers and spreadsheet software.

5). Patron Measures: In many cases finding these data are only a matter of knowing how to look at the available systems. Online catalogs area an excellent source. By examining search records it is possible to determine success rates in the search process.

While ease of access to data is important, it is the use of that data for management planning and decisions that is important. Three fertile areas for the new automated technologies are cost analysis, staffing patterns, and user needs studies.

1). Cost Analysis: In these times of increased fiscal restraints it is essential to use data cost decisions. Using spreadsheet software and microcomputers it is very easy to create databases that contain the relevant information to analyze costs.

2). Staffing Patterns: Regression analysis provides an excellent tool for this type of study. Not only is it a useful tool to describe how current staff should be allocated within a model, it can be used for modeling when planning for increases or decreases in the staff. It allows one the ability to experiment which is a key asset of using automated systems for management.

3). User Patterns: As mentioned above this is an untapped area which has much more promise in an automated environment. There is no doubt that determining success rate with an online catalog by evaluating search records is a lot easier than attempting to do this at a card catalog.

CONCLUSIONS

Although management statistics have long been collected, it has been only since the advent of automated systems, especially microcomputers, that a more sophisticated an imaginative examination of these data have been made. However, the potential has not been fully tapped. Data exists in our systems that we are not completely aware of how to best use for management purposes. In addition it essential that with the resources that are now available that we broaden our endeavors make the most advantageous use of management statistics. The potential now exists to move from the mundane to the creative.

IFLA GENERAL CONFERENCE AND COUNCIL MEETING PARIS 1989

Division: GESTION AND TECHNOLOGY

Section/RT: VALUE OF LIBRARY SERVICES

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LIBRARIANSHIP IN SUPPORT OF SCHOLARSHIP

by

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LIBRARIANSHIP IN SUPPORT OF SCHOLARSHIP

Introduction.

When I was first asked to prepare this paper, the overall focus of this seminar was described as the value of library service. We have just heard a series of excellent papers on various aspects of management and the application of technology in libraries. The issues discussed have included the value of library service, value-added services, planning, the use of audiovisuals and decision support packages for management purposes, and the place of preservation in today's library management scheme.

I should now like to consider with you the kind of library service we need to envision for the future. Such library service will be of great value to learning and scholarship. I owe much of this vision of the library's future to my colleagues in medical librarianship, and in particular to Nina Matheson, director of the William H. Welch Library, The Johns Hopkins University, Baltimore, Maryland. Ms. Matheson is a former president of the Medical Library Association and one of our true visionaries. Many of the ideas regarding where technology will take scholarship come from the report of a National Academy of Sciences panel on information technology and the conduct of research, chaired by Donald N. Langenberg, chancellor of the University of Illinois at Chicago. The title of the report is *Information Technology and the Conduct of Research: The User's View*.

The Library.

Drucker says in his book, Managing in Turbulent Times, that public services institutions must "slough off yesterday through systematic abandonment of certain assumptions and mind-sets"[1]. If librarianship is to continue to be of value to learning and scholarship, then we as librarians may have to slough off some our traditional mind-sets. It is time to ask ourselves some hard questions. How long have we been trying to get people to flock to our libraries? Is the bibliographic citation the best information we can provide? Is the conventional catalog the best tool we can devise to provide access to information? Why do we think the provision of a document is a reasonable response to a question [2]?

Given what we know of the past and what we can speculate about the next decade or so, neither the library nor the profession is well positioned. The library's assets usually include a large physical plant, a stock of essential materials to support learning and scholarship, a value-added product (the catalog), and a trained staff to assist individuals in gaining access to the stock [3].

However, these assets are undergoing a devaluation process. We have placed information in a facility that is frequently difficult to use. This in an era in which information is transported instead of people. And yet, we oversee a stock of essential materials that can be used by only one person at a time in only one way. This in an era in which millions of people watch the same television program or talk on the telephone simultaneously, an era in which institutions such as banks provide full- or cafeteria-style service. And yet we still see ourselves as responsible for providing entree to a small portion of the collection, that is the monographs, when the most dynamic and critical information is in serial literature. This is an era in which expert advice is essential to compensate for information overload. The bibliographic files, because they are value-free, are increasingly valueless because they cannot help a user differentiate between the useful and the useless. The fact that storage and retrieval of information are of value to society is not the issue [4].

How should the library respond? One response is that libraries and librarians must become problem oriented: not library-problem oriented, but user-problem oriented. If we can shift to this perspective, any fears about the existence of meaningful work in the future would evaporate [5].

The Scholar.

Scholars have always been dependent on technology because it sets limits on their ability to communicate with other scholars over space and through time. Since ancient times, scholars have journeyed to visit other scholars for face-to-face communication. The feasibility of such travel depends considerably on the vehicles available -- human feet, a camel, or the Concorde. Writing and sending written documents from place to place is another means of scholarly communication that provides an important link between scholars separated by distance. The relative permanence of writing in books and journals has made it possible for scholars to communicate through time, as well.

Technological advances have, often radically, altered the circumstances of scholarship. Other than the invention of printing, no advance in technology has had, or will continue to have, as profound an effect on scholarship as the discovery of how to transmit information electronically. The use of the telegraph, the telephone, radio, television, and the computer to send information around the world has increased by quantum leaps the communication and information-handling capabilities of scholars [6].

Technological advances have altered not only communication, but the very environment in which the scholar works. No longer is a carrel hidden in the stacks the coveted work area. The scholar of the future will need a "workstation," i.e. a combination of hardware and software that would include the following capabilities:

1) the ability to scan and store data from a variety of sources, including books, journals, databases, optical disks, and high-rate data streams;

2) the ability to deal with this data in a variety of ways, from word processing to the handling of complex data with the assistance of artificial intelligence systems;

3) an operator interface, probably visual and voice, that takes advantage of the human eye-brain system and verbal communication;

4) the ability to produce outputs in a variety of formats, including high-resolution visuals, voice, high-rate data streams from other computers, and symbols and pictures on paper.

Such a workstation would link scholars with each other and to many worldwide sources of information via a network capable of the convenient exchange of large databases and pictures. This global network would be very easy for the scholar to use and capable of meeting the total information needs of the most demanding specialist [7].

Library of the Future.

The needs of the scholar suggest a merger of library, computer, and telecommunication technology. The library of the future will still need to collect books, journals, and other convenient packages of stored information. This library will also need to have some of the characteristics of a computer "center," which can support an electronically linked family of computers. These networks might link units in a single office or department, an entire university, or a whole nation. They could even be global in scope.

This library infrastructure would support scholarship by providing the following capabilities:

1) Information can already be stored in forms that are easily accessible to scholars, permitting them to communicate with one another over time and space at almost unimaginable speed.

2) Sophisticated systems would enable scholars to manipulate information in order to create new information, new insights, and new knowledge.

3) Both human and non-human assistance could be made available to scholars to ensure easy system access and use [8].

Such a library, and I urge you to think of libraries in terms of this entire system, would store knowledge of the scholarly disciplines in complex structures, perhaps represented in a way yet to be discovered. It would reason with this knowledge to satisfy the needs of the scholars. It would retrieve and exhibit, act as electronic textbook, collect information, summarize, and pursue knowledge relationships. It would act as a consultant on specific problems, justifying advice and solutions with citations or the logic of general reasoning. It would collaborate with the user, using the processes of drawing associations and analogies [9].

Preservation.

Because it is already such a crucial issue, and will continue to be one, I will digress briefly in order to mention preservation. First, I would say that national and international libraries of record will need to be designated for identified subject matter and scope in order to guarantee economical preservation of our resources.

In terms of the library of the future, we need to give consideration to our curatorial and preservation responsibilities for the relatively new artifact of databases and software, and to as yet unknown knowledge representations that may be developed. With respect to these new media, it is particularly important to assure the future availability of data stored in such dynamic computer files. Data from a variety of sources that are currently under development may not be available until a few years hence. In what form should these data be stored, and what responsibilities have libraries to assure their future availability? There is a new aspect of preservation that deals not with preserving the material on which the information appears, but with preserving the "integrity of reference." This means ensuring that data to which reference is made today should be available in the future as the same data unchanged. In dynamic files, that "integrity of reference" may be lost [10].

Scenario.

Consider this scenario. It is a management scenario, but I am sure that you will have no trouble adapting it to the needs of the scholar, or, for that matter, to the needs of the student or even a library patron with a bit of curiosity on a given topic.

Dr. Fitzsimons, director of a medical school library, walks into her office on Monday morning, slips off her coat, and nods to a small computer across from her desk.

"Good morning, Athena. What does my schedule look like today?"

The computer responds, "Well, Dr. Fitz, it looks like a busy day for you, not much time for your pet projects."

"Well, I'll cope," says Dr. Fitzsimons. "Give me the bad news."

"You have a meeting of the library advisory committee about next year's budget, you need to review the AI system that staff is developing, and a number of other odds and ends."

Athena calls the members of the advisory committee on the videophone, and then begins the meeting by reviewing with them the agenda and anticipated outcomes for the meeting. The committee attends to the business of the budget with dispatch and approves it.

"We're afloat for another year. I'm glad that's over," says Dr. Fitzsimons.

Then Dr. Fitzsimons dictates several letters, which Athena types and codes. If Athena doesn't know how to classify the letter, she asks Dr. Fitzsimons.

Dr. Fitzsimons asks Athena a number of questions, to which Athena responds, about the work of an international committee of librarians that is developing preservation standards for software presently used in medical libraries.

Then Athena brings Dr. Fitzsimons up-to-date on the work of the staff planning committee regarding a new service: a system that bridges all information for scientists, health professionals, the press, and the consumer to answer questions relating to AIDS.

This scenario may seem like a flight of fancy, but not if you can envision the directions in which technology can take us [11].

Conclusion

Today's libraries are warehouses of passive packets of information. Books and journals wait on the shelves for the scholar to find them, to inspect them, and, finally, to mine them for their knowledge. Our electronic libraries of today are not much better. Their pages are databases. While they need to be preserved, they also need to undergo dramatic change if they are to continue to be of value to learning and scholarship. Tomorrow's library, as envisioned in this paper, will be of immense value to society. Tomorrow's library will have books that talk to each other and talk to the scholar as well.

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Appendix 16

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